TECHNOLOGY DEPT.
First Copy

A National Newspaper for Every Branch of the Industry

PUBLIC LIBRARY
DETROIT

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

Vol. 11. No. 1507 — Entered as second-class matter Aug. 27, 1925, Post Office, N. Y., N. Y., Under Act of March 3, 1879. — NEW YORK, WEDNESDAY, JULY 8, 1931 — 5 Cents, $12 Per Year

Exports of Motor Vehicles Fom U. S. in May 25,812, 20% Behind Previous Month

Accounts for Only 7.9% of Total Production as Against 9.1% in April and 11.1% In May, 1930

NEW YORK, July 7.—Exports of motor vehicles, measured in units, from the United States and Canada in May amounted to 25,812, as against 32,194 in April, off 20 per cent., and comparing with 49,161 in May of last year, a decline of 47 per cent. The May exports accounted for only 7.9 per cent. of the total production, as against 9.1 per cent. in April and 11.1 per cent. in May, 1930.

For the first five months of this year, exports amounted to 142,864 cars and trucks, as against 243,478 in the corresponding period of 1930, off 41 per cent. The five months total this year was equivalent to 10.4 per cent. of the production, as against 12.4 per cent. last year. The figures include foreign assemblies.

Exports of passenger cars from the two countries in May totaled 17,214, as against 19,126 in April, off 10 per cent., and comparing with 29,956 a year ago, a decline of 42 per cent. In the first five months, exports of cars reached 88,843 units, as against 153,500 a year ago, off 42 per cent. The May total accounted for 6.1 per cent. of the output, as against 6.4 per cent. in April and 7.8 per cent. a year ago. In the first five months, 7.8 per cent. of the passenger car production went into the export market, as against 9.2 per cent. a year ago.

Truck exports from the two countries in May totaled 8,598, as against 13,068 in April, off 34 per cent., and comparing with 19,205 a year ago, a decline of 55 per cent. The five months total was 54,071, as compared with 89,978 in the similar period of 1930, a falling off of 40 per cent. The April total was equal to 18 per cent. of the output, as against 24.6 per cent. in April and 30.9 per cent. a year ago. In the first five months, exports of trucks took 24 per cent. of the output, as against

(Continued on Page 2)

A. P. I. CURTAILS RESEARCH PROGRAM; 3 PROJECTS CONTINUED

New York, July 7.—Plans for continuation for two years, but on a smaller scale, of the five-year program in fundamental recearch in petroleum which ended July 1 last, have been announced by the American Petroleum Institute.

The sum of $75,000, already largely subscribed by several oil companies, will make possible further studies of petroleum occurrence, recovery and composition through Projects No. 4, 37 and 6. Some $115,000 already has been invested in these three projects out of the $100,000 contributed annually during the past five years by John D. Rockefeller and the Universal Oil Products Company. At the end of the two years it is hoped to raise funds sufficient to finance a resumption of the complete program.

Project No. 4, "Origin and Environment of Source Sediments of Petroleum," has as its object ascertaining the characteristics of source beds of petroleum. The first phase of the investigation, covering a study of the conditions under which source sediments are now accumulating beneath the sea, has been

(Continued on Page 2)

First Half Sales Near 1,175,000 Output Held to 1,633,698 Units

NEW YORK, July 7.—With sales and production figures now in hand for the first five months of the year and close estimates for the remaining month we are able to assess the first half of the year's operations by the automotive industry. Our estimates, which have been checked and cross-checked, indicate that production for the first six months of 1931 will be 1,633,698, as against 2,304,363 for the same period in 1930.

The estimate for the production total of the first half of this year includes the figure of 250,000 units, for June at which Automotive Daily News arrived at the result of a telegraphic check-up made on July 1.

As regards sales, we have definite figures in hand for the first five months of 1931 which give us a total of 975,219, which compares with 1,392,667 in the same period of 1930. Basing our estimate on past performances and allowing a 20 per cent. decrease in sales for June under May, we have a total sales figure for the first half of this year of 1,175,000.

This compares with 1,653,611 during the first six months of 1930.

On the basis of these estimates production has fallen off about 34 per cent., with sales following in about the same proportion.

AUTOMOBILE BODY SHEET DEMAND WAS HIGHER LAST WEEK

Youngstown, O., July 7.—Specifications for automobile body sheets increased slightly during the past week with sales volume at a moderately higher rate than the previous week.

Steel for the new low-priced Plymouth is being purchased in part in the Mahoning Valley by Chrysler Corporation, it is reported in trade circles. Further substantial tonnages as this model develops is expected by valley sheet manufacturers.

Sheet prices are somewhat stronger with many important buyers willing to make their purchases on recently-adopted bases, provided all users pay the same price. Incoming business recently is felt to have reflected the advance in prices as much as any improvement in steel consumption of the leading industries.

PLAN SYMPOSIUM ON ENGINEERING PROGRESS

Philadelphia, July 7.—A nation-wide symposium on "Engineering Progress," to which leaders of thought in numerous fields will contribute, will be conducted by the four major engineering societies and their research agency, the Engineering Foundation, in the near future, according to H. Hobart Porter, chairman of the Engineering Foundation.

The object is to collect and publish a series of statements on benefits from engineering progress "to advance the good of mankind by stimulating resourceful Americans to think their way through the passing months of maladjustment into effective action that will restore our normal state of steadily ascending happiness and freedom."

J. J. HANRAHAN JOINS ANGELICA BEARING

Los Angeles, July 7.—J. J. Hanrahan, formerly branch manager for the Timken Roller Bearing Company, has joined the Angelica Bearing Company, 240 West 18th St.

CHICAGO TO LAUNCH HUGE CO-OPERATIVE SAFETY CAMPAIGN

Chicago, July 7.—A joint safety campaign said to be the most comprehensive ever undertaken in any large city, will be launched here during the week of July 20 by the city council committee on traffic and public safety in co-operation with the Chicago Safety Council.

Seven safety lanes will be placed in operation simultaneously at various points of the city, six of them for passenger cars and the seventh for trucks. The lanes will have a capacity for handling between 40,000 and 50,000 vehicles during the week.

At each safety lane a check will be made of headlights, horn, rear view mirror, windshield wiper, steering wheel play, wheel alignment and brakes. No charge will be made for the inspections. Every driver whose car is found to be in safe operating condition will be given an "O. K." card, while those vehicles with defects will have the troubles listed.

The decision to put on the safety drive followed a meeting at the Palmer House, attended by Alderman John A. Massen, chairman of the City Council committee; Guy Richardson, vice-president of the Chicago Safety Council, and representatives of the park commissions, transit companies, motor clubs, the automobile trade, public schools, women's clubs, Boy Scouts and fraternal organizations.

LUMBER COMPANIES TO CURB OUTPUT

Chicago, July 7.—A plan of far-reaching importance to the lumber industry has just been agreed upon by more than 100 leaders in the field, with the recommendation that it be presented to the industry as a whole for adoption.

The proposal, growing out of a meeting held here at the Drake Hotel, and attended by lumber chiefs representing both hardwood and softwood production, calls for the adjustment of production to current demand. The need for such a readjustment, it was agreed, is imperative and immediate.

Late News Flashes

Toledo, O., July 7.—Reports here are to the effect that forty-two-hour schedules are in force at some of the plants of the Libbey-Owens-Ford Glass Company to meet increased demand. Prices are also said to be showing firmer characteristics. It is stated that the contract with General Motors will probably have a favorable effect on earnings later in the year.

* * *

Washington, July 7.—The Post Office Department has awarded a contract for fifty-three heavy duty mail trucks to the Autocar Company of Ardmore, Pa. Eighteen of the trucks will be assigned to duty at the New York post office and twenty-two to Brooklyn. The order calls for immediate delivery.

* * *

New York, July 7.—The New York Stock Exchange has received notice from the Standard Oil Company of New York of a proposed increase in authorized capital stock from $450,000,000 to $1,000,000,000 and a change in name to Socony-Vacuum Corporation.

TODAY

Sparks from Detroit .....Page 2
Editorial: "Can Farmers Afford Cars?" .....Jage 4
Contemporary comment .....Page 4
Calendar of coming events..Page 4
Engineering news .....Page 7
Insuring wholesalers' profits with trucks .....Page 10
May Chevrolet car sales top 1930 in many states.....Page 11
REFERENCE TABLE
Passenger car equipment and accessories .....Page 6
Major specifications and mechanical details of passenger cars Pages 8, 9
Concrete May new commercial car registrations .....Pages 10, 11

Indiana Industrial Outlook Brightest in Nearly 2 Years

NEWCASTLE, Ind., July 7.—The local industrial outlook is the brightest in nearly two years and a spirit of optimism has become suddenly prevalent here.

The Chrysler Corporation, which maintains a large gear plant here, has increased its working force by more than 500 men in the last month and is working night and day and Sundays. The forge shop is on a twenty-four hour basis.

S. E. Welch, factory manager, attributes this increased activity to the production of the new four-cylinder Plymouth just announced with a Chrysler-built free wheeling transmission and new ideas in engine mountings. Much of this work is being done at the Newcastle plant as well as free wheeling units for other Chrysler products now offered as optional equipment.

Besides the new operations in constructing the free wheeling units, three new steam hammers are being installed in the axle department, especally designed for production of the new Plymouth. The factory has received shipment of forty-five cars of steel this week alone, the most steel to be received in two years. The seasonal letdown for July is not anticipated, it was announced at the factory, due to constantly increasing production schedules at the Detroit Plymouth factory.

The French Manufacturing Company here also has taken on more employees, and the Perfect Circle Company, which set a new production record in May, expects final reports to show still further improvement in June.

Coupled with this is an announcement from the chamber of com-

(Continued on Page 8)

FINDS CLEVER CIRCULARS GOOD SHOP BUILDERS

See Page 3

Exports of Motor Vehicles From U. S. in May Off 20%

(Continued from Page 1)

30 per cent. in the corresponding period of 1930.

Exports of cars and trucks combined from the United States alone in May were 22 per cent. below April and 47 per cent. under a year ago, while in the first five months the decline was 40 per cent.

From Canada, exports of cars and trucks combined in May were 29 per cent. higher than in April but 50 per cent. below a year ago In the first five months, exports from Canada were off 54 per cent.

The following tables compare United States and Canadian exports of cars and trucks in 1931 with last year:

Cars and Trucks Combined

	1931			Pct. of Output Exp.
	U.S.	Canada	Total	
Jan. ..	23,210	3,054	26,264	14.7
Feb. ..	23,295	1,565	24,860	10.8
Mar. ..	31,881	1,853	33,734	11.6
April .	31,022	1,172	32,194	9.1
May ..	24,300	1,512	25,812	7.9
Totals	133,708	9,156	142,864	10.4
	1930			
Jan. ..	41,503	2,953	44,456	15.7
Feb. ..	36,524	4,237	40,761	11.8
Mar. ..	46,369	6,308	52,677	12.6
April .	53,152	3,271	56,423	12.0
May ..	46,137	3,024	49,161	11.1
Totals	223,685	19,793	243,478	12.4

Passenger Cars

	1931			Pct. of Output Exp.
	U.S.	Canada	Total	
Jan. ..	14,160	1,798	15,958	11.2
Feb. ..	14,756	881	15,637	8.3
Mar. ..	19,581	1,327	20,908	8.6
April .	18,363	763	19,126	6.4
May ..	16,131	1,083	17,214	6.1
Totals	82,991	5,852	88,843	7.8
	1930			
Jan. ..	22,753	1,317	24,070	9.8
Feb. ..	25,036	2,498	27,534	9.3
Mar. ..	30,792	5,029	35,821	10.2
April .	33,816	2,303	36,119	9.1
May ..	27,825	2,131	29,956	7.8
Totals	140,222	13,278	153,500	9.2

Trucks

	1931			Pct. of Output Exp.
	U.S.	Canada	Total	
Jan. ..	9,050	1,256	10,306	29.0
Feb. ..	8,539	684	9,223	22.0
Mar. ..	12,300	526	12,826	26.9
April .	12,659	409	13,068	24.6
May ..	8,169	429	8,598	18.0
Totals	50,717	3,304	54,021	24.0
	1930			
Jan. ..	18,750	1,636	20,386	52.8
Feb. ..	11,488	1,739	13,227	25.9
Mar. ..	15,577	1,279	16,856	25.3
April .	19,336	968	20,304	28.5
May ..	18,312	893	19,205	32.9
Totals	83,463	6,515	89,978	30.0

MASS. STARTS CAMPAIGN TO CHECK MOTOR CARS

Worcester, Mass., July 7.—Nearly 500 automobiles were stopped over the recent holiday by troopers from the Holden, Grafton and Brookfield state police barracks in connection with the state-wide campaign being carried on against erring drivers. Approximately 25 per cent. of the drivers stopped were given safety stickers for certain infractions of the automoble laws. The stubs of these stickers are sent to the governor's committee on highway safety and eventually find their way to the office of the registrar of motor vehicles for such action as he sees fit to take.

Classified Advertising

Classified Rates 5c Per Word

SALESMEN WANTED

Adjustable glare shield; attractive profit. Write for territory. Venus Manufacturing Co., Tulsa, Oklahoma.

W. T. PALMER PROMOTED BY RUSSELL MFG. CO.

Middletown, Conn., July 7.—T. M. Russell, president of the Russell Manufacturing Company, makers of Rusco brake linings and more than 400 other fabric products, announces the promotion of W. T. Palmer from manager of the replacements department to manager of the replacements and equipment departments.

Ten years ago, when Mr. Palmer originated the replacements department, the Russell company was selling no brake linings to the public. Under his guidance Rusco linings have become one of the best-known automotive features in the United States with annual sales of approximately $4,000,000, sold through more than 40,000 dealers and authorized service stations and 225 direct factory sales representatives.

HALF-YEAR TUNNEL TRAFFIC NEAR 6,000,000

Jersey City, N. J., July 7.—Traffic through the Holland Tunnel in the first six months of this year came within a few hundred vehicles of topping the 6,000,000 mark the Port of New York Authority announces.

The total for the half year was 5,996,115, which was an increase of 315,525 over the corresponding period of 1930.

As indicative of the growth in traffic since the tunnel was opened in the late fall of 1927, it was pointed out that the figures for the first half of 1931 represented about 70 per cent. of the travel for the first calendar year, 1928, when the tunnel was in operation.

The count for June, 1931, was 1,117,105 an increase of 41,498 over June, 1930.

FRIGIDAIRE BOOSTS ITS JULY OUTPUT SCHEDULE

Dayton, O., July 7.—July production of the Frigidaire Corporation household electric refrigerators has been set at 32 per cent. above that of July, 1930. June production was 30 per cent. above that of the same month last year. During July and August Frigidaire Corporation will conduct an anniversary sales campaign based upon fifteen years of achievement in the refrigeration business.

PHILADELPHIA CAR SALES HOLD STRONG

Philadelphia, July 7.—Sales of new passenger automobiles in the Third Federal Reserve district, as measured by registrations, according to The Business Review, published by the Federal Reserve Bank of Philadelphia, as of July 1, were slightly larger than was to be expected but they remained considerably below those of a year before Registrations of used cars, on the other hand, showed a further gain in the month and as compared with two previous years.

INDIANA STANDARD ANNOUNCES PROMOTIONS

Chicago, July 7.—Official announcement is just made of promotion of W. B. Haas, formerly statistical secretary to the president, and L. E. Harmon, formerly auditor of manufacturing, as assistant secretaries of the Standard Oil Company of Indiana. M. A. McNulty and E. H. Vollriede have been moved up to the positions of auditor of manufacturing and assistant auditor respectively.

BERGER TO REPRESENT WELKER-HOOPS ON COAST

Los Angeles, July 7.—E. C. A. Berger has been named Pacific Coast manager of the Welker-Hoops Manufacturing Company of Middletown, Conn., and has established a warehouse at 1851 South Hope St. to supply the eleven Western states.

SEAL RITE APPOINTS COOPER AT LOS ANGELES

Los Angeles, July 7.—Tom Cooper has been named sales director of the Seal Rite Piston Ring Company, 765 Venice Boulevard. Cooper was formerly Pacific Coast manager of the Simplex Piston Ring Company of America.

A. P. I. CURTAILS RESEARCH PROGRAM; 3 PROJECTS CONTINUED

(Continued from Page 1)

completed after five years of work by Dr. Parker D. Trask. The second phase, investigation of possible sources of material in petroleum rocks of past geologic age in the vicinity of present production fields, now will be undertaken.

Project No. 37, "Fundamentals of the Retention of Oil by Sand," represents a search for information as to the physical properties of oil-gas mixtures under pressure as high as 3,000 pounds, information necessary to planning a scientific development program. This work has been under way for about three years under the direction of Dr. Robert A. Millikan, of the California Institute of Technology.

Project No. 6, "The Separation, Indentification, and Determination of the Constituents of Petroleum," deals with the composition of petroleum, present information being woefully inadequate. The work is being done under the direction of Dr. E. W. Washburn, of the United States Bureau of Standards, who has developed technique and much expensive apparatus, is conducting operations at the bureau on a 24-hour basis and rapidly is producing results.

A. V. HALL VICE-CHAIRMAN OF DIVISION C, M. E. A.

Chicago, July 7.—A. V. Hall, of Sherwood Hall Company, Grand Rapids, Mich., was named vice-chairman of Division "C" of the Motor and Equipment Association at the recent meeting of the M. E. A. board of directors in Chicago.

C. F. Wright of Ballou & Wright, Portland, Ore., is the chairman of Division "C," which includes all of the wholesaler members of the Association.

L. D. TUTTLE APPOINTED STANLEY REPRESENTATIVE

Atlanta, Ga., July 7.—L. D. Tuttle, who has been representing the Van Norman Machine Tool Company in the sale of Stanley automotive electric and service tools in the Southern states, will now represent the Stanley Electric Tool Company direct in the sale of electric tools to the industrial, electric and automotive service tools to the automotive distributors. Associated with Mr. Tuttle in his Atlanta office at 59 Baker St. N. W., is E. G. Jones and E. A. Walker; in his Dallas office at 2101 North Akard St., Stafford Jones.

NEW JERSEY DEALERS ADOPT NEW BILL OF SALE

Newark, N. J., July 7.—Local automobile dealers are rapidly adjusting themselves to the requirements of he new motor vehicle bill of sale law, which went into effect July 1. The co-operation of the Motor Vehicle Department in Trenton has ironed out many of the difficulties that are usually incidental to the introduction of a radically different law, dealers say. "It will be a matter of only a few days when dealers will be operating their departments as smoothly as before," said Manager Claude Holgate of the Newark Automobile Trade Association.

RUSSELL MFG. CO. PROMOTES H. W. KELSEY

Middletown, Conn., July 7.—H. W. Kelsey, general sales manager since 1915 of the Russell Manufacturing Company, manufacturer of Rusco brake linings, has been promoted to take complete charge of all of the purchases of this company, according to announcement by Daniel R. Weedon, whose appointment as treasurer and general manager was announced recently.

ALUMINUM AND METAL PRODUCTS CO. FOUNDED

Buffalo, N. Y., July 7.—The Aluminum and Metal Products Company, Inc., has been chartered with a capital of $25,000, to establish and operate a plant for the manufacture and distribution of aluminum and metal automobile specialties and accessories. The new concern is represented by E. H. Webster, local attorney.

SPARKS from DETROIT

Ye Dearborn Inn

* * *

McDuffee in Detroit

* * *

Reeves Points to the Junkers

* * *

Chris Sinsabaugh—Detroit Editor

"DEARBORN INN, H. Ford, Prop." one expects to see on a sign when approaching the new million and a half dollars hostelry opposite the Ford airport on Oakwood Boulevard. There ought to be one reading like that, for Henry Ford built the magnificent Colonial-type tavern whose doors are now open to the traveling public. However, the automobile magnate, having initiated the project, is now content to let the Treadway Service of New York do the landlording.

Convoyed by Bill Stout, eminent airplane manufacturer and one of H. Ford's business associates, this column conductor slipped in with the select crowd invited for the housewarming the other evening. We didn't get into the "inner circle," the dinner party given by the Fords to Gov. Brucker and a few other friends, but we were in a personally conducted tour of the inn and we came away all het up about it.

* * *

ORDINARILY, the opening of a new inn doesn't mean much to the automobile industry, but in this case it does. In building it Ford had in mind the salesmen who come to the plant in droves to sell him goods. Dearborn being so far out, these salesmen, when stopping in Detroit, have to get up before breakfast to get to the Rouge plant in time for early appointments. Hence, one reason for the Dearborn Inn. Now the early bird can go there the night before and not have to worry about his appointment.

Of course, there are other reasons too. There's the need of caring for the thousands who use the airport, across the street from the inn, not to overlook those who will be coming to see the Greenfield village, within a stone's throw, and the Edison Institute of Technology and the Greenfield Museum.

* * *

THE womenfolk in the Stout party went crazy over the inn. While Colonial throughout, each room is different in its treatment, different wall paper in each, some with highboys, others with lowboys; and bellboys awaiting your call; quaint old-fashioned chairs with hemp seats; antique-type chintzes and the like; while getting down to modern times we found the concealed type of radio in each room, an electric clock and a bathroom which made us regret it wasn't Saturday night. What made a hit with me, though, was the observation roof, really a terrace, from which you see everything—airport, Greenfield village and real country. They gave us cool ginger ale and dainty sandwiches up there and we hated to leave.

* * *

THAT wasn't the end of the eventful evening, though. Followed a dash for the Detroit Athletic Club and listening to the radio describe the landing in New York of Post and Gatty. The radio spoke the language of our host and one of his other guests, Ralph Upson, regarded as one of the leading authorities of the country on airplane and dirigible design. While enthusing greatly over the round-the-world flight and the effect it will have on aviation, both Stout and Upson talked most about the preparation that preceded the globe-circling feat.

"Ninety per cent. of the work was done before they started," commented Stout. "It must have taken Gatty at least three solid months to chart the course and he must have had everything within a hair's breadth of being right, the way they held the schedule. It was a great, a marvelous performance."

* * *

WHILE I still was air-minded and writing the above came a mysterious telegram from Indianapolis, reading: "Arriving Municipal Airport 1.30 today.—J. H. McDuffee." Naturally, I thought the general sales manager of Prest-O-Lite Battery had read what I had said about him in Sparks and was on his way to Detroit to even scores with me for calling him Old Restless. On the minute the phone rang and it was McDuffee. But what he had in mind was taking me for a ride in the Prest-O-Lite airplane. Fearing he was in a vengeful mood and Old Restless did not make much of a hit with him, I dodged gracefully, pleading that I had to finish the column.

Clever Circulars Prove Tonic to Shop Work on Cars

Increase Lagging Service Receipts to 28.8 Per Cent. Beyond Those of Previous Month in a Period of Nine Days

IN June, Herbert Bros., distributors of Willys and Willys-Knight cars, Philadelphia, with a view of stimulating business in the service department, started to mail out, under a two-cent stamp, to owners copies of two clever and convincing circulars, one announcing a limited time offer of certain service operations at sharp price reductions, and the other a serio-comic offset, tending to promote thought on the part of the recipient. To date, this is what the two mailing pieces, which were inclosed in the same envelope, have brought about:

Increased service and repair receipts in the nine-day period between June 21, when the department's figures were still behind, and June 30, no less than 28.8 per cent. over the receipts for the entire month of May, 1931, and 7.8 per cent over the entire month of June, 1930.

Gained about fifty new customers who had never before brought their car in for service or repair work.

Won back four old-time customers who had not entered the service station for a very long period.

Obtained plenty of work from regular service customers, who were quick to take advantage of the unusual offers of service "specials" at remarkably low prices.

It is expected that the results will be cumulative, the foregoing being but an entering wedge.

The thousands of circulars were mailed out at the rate of 200 daily, so that there would not be too much of an immediate rush in response. On June 21, when the house was in the midst of the mailing, the department figures were still behind, as mentioned, the response being slow in starting, but quickly gathering momentum.

"A number of persons who are not owners of Willys, or Willys Knight, automobiles have been bringing their cars to us for servicing since the circulars were mailed," said F. R. Deichler, secretary of Herbert Bros., who prepared the copy. "This shows that our owner-customers, pleased with the work, have been telling their friends and acquaintances about the offers in the circulars. We are easily able to trace the increase in business to influence of the mailing pieces, for people have been coming to the service station holding them in their hands and carrying them in their pockets, as well as mentioning the advertised specials they wished performed."

As these circulars were successful in increasing business in dollars and cents, although announcing lower prices on service work, it demonstrates they were not "just another special announcement," but carried a real appeal, making them worth description.

The more important mailing piece carrying the announcement was a folder 6x9 inches, of cream glazed paper printed in green, principally, and in orange for a front page vignette of a couple motoring through the country, for borders, for the figures and explanation of the main special and for the company name and address at the bottom of the last page. The first page, in addition to the illustration mentioned, bore the following centered announcement:

SHARP PRICE
REDUCTIONS
The best and most we have offered since 1907
THIS OFFER IS LIMITED
Take advantage of these
NEW LOW PRICES
HERBERT BROTHERS
Distributors
WILLYS AND WILLYS KNIGHT
FINE MOTOR CARS
1409-11 North Broad Street, Philadelphia
Tell Your Friends About Herbert Service
Established in 1907—One of Philadelphia's Institutions

Unique Service Idea

A SPECIALIZED SERVICE to aid the motorist or truck driver is announced by authorized new car dealers in Camden, N. J., and vicinity. The first directory, unique and original, listing the various dealers, appears for the first time in Camden, and is reproduced above. By means of the directory, the motorist or truck driver is enabled to know at a glance where he can take his machine for service. Each dealer maintains an authorized service department in charge of mechanics particularly skilled in the repairing of the particular car for which it has the dealership

At the bottom of the page, partly inclosed in borders, appeared the following announcements, partaking somewhat of the nature of slogans:

"Your Satisfaction Is Also Ours"; "Our Mechanics Are Specialists on Your Car and Are Factory Trained"; "We Use Only Genuine Factory Parts"; "Low Cost of Transportation Is Our Aim." This bordered feature of "little sayings" appeared in different phraseology on every page of the folder—at both top and bottom on the two inner pages and at the top on the final page.

Ed Mellor, recently reappointed service manager for Herbert Brothers, but who has been with the distributors for fourteen years, had an open letter to customers on Page 2, over his signature, explaining the message of the specials. Headed "24 Years of Honest Automobile Service," this letter read:

"To our many old and new customers, we are offering a few very attractive 'Specials' for your car. Call these 'Specials' anything you care to—'Spring Tonics' 'Motor Pep,' 'Spring Service'—anything—the fact remains it is just first-class repair work your car needs at this time of the year. It is offered to you by a concern that has been serving the motoring public for twenty-four years.

"'Herbert Brothers' is a safe label. The business was started twenty-four years ago and the same management still conducts it. Does it not impress you to think of the same concern being in this still young automobile industry for twenty-four years? Our success has been built by successfully serving the motoring public. We have the facilities for taking care of your car. We have the necessary tools and equipment, which includes special jigs and fixtures needed to properly service the Knight sleeve valve motor, as well as the conventional poppet valve motors, and a corps of capable mechanics and others in our service department is maintained to intelligently care for your car when it is brought in to us for service.

"That is why we say you may call our 'specials' anything you care to. The name means little compared to what you actually will receive when you deal with a well-organized, reliable concern, with our experience in automobile servicing.

"If 'specials' appeal to you, we hope you will avail yourself of the opportunity offered and have your car put in shape now for the many enjoyable trips over our splendid highways. Do not put it off until later. It isn't fair to your car. There are many miles left for enjoyable transportation. Give it a dose of 'sulphur and molasses.'

"No matter how big or small the job, we appreciate your patronage and will serve you as we have successfully served thousands of others. Every job we do is absolutely guaranteed for a period of thirty days. If not satisfactory, it will be done over without charge to you.

"Yours for good service at the right price.

"ED. MELLOR,
"Service Manager.

"P. S.—I have been with Herbert Brothers for fourteen years, and have recently been reappointed manager of the service department. Every job receives my personal supervision."

The bordered sayings at the top of this page read: "Let's Get Acquainted," "You Must Be Pleased," and at the bottom, "Save Money Now," "A Stitch in Time Saves Nine."

Page 3 of the folder proved, by the figures quoted, that the price reductions were remarkable and that a really large amount of work was offered for a very little money. The page was headed: "Everything Has Gone Down—Why Shouldn't Automobile Repairs? Today!!! Take Advantage of These Sharp Price Reductions. Does Your Car Need Any of These?"

The bordered sayings on this page and on the last were as snappy as those preceding. The final page carried five halftone reproductions that were "action" pictures of service station and repair shop employees at work, the captions stating their names and specialties.

MEXICAN AUTOMOTIVE JOBBERS ADMITTED TO M. E. A. MEMBERSHIP

New York, July 7.—Members of the Association De Mayoristas De Articulous Para Automoviles En Mexico (Mexican Automotive Jobbers' Association) were admitted to Division "C" of the Motor and Equipment Association on an associate membership basis by action of the M. E. A. board of directors at its recent meeting in Chicago.

The Mexican group of wholesalers now has the same status in the M. E. A. as the members of the Canadian Motor and Equipment Association. The admission to associate members was made possible by an amendment to the by-laws of the M. E. A. which was approved by a heavy majority in a mail vote.

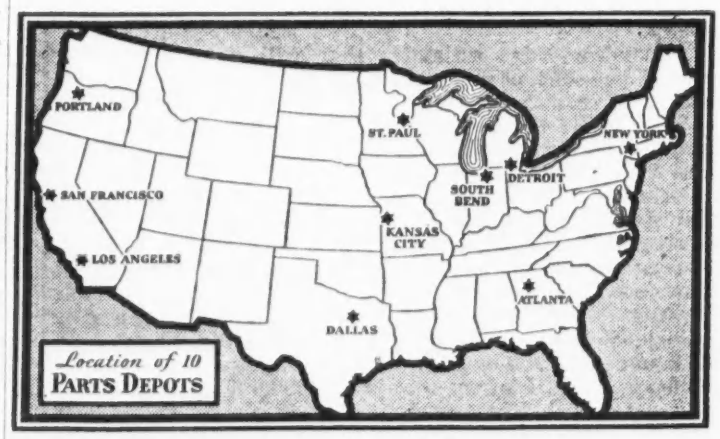
The following companies were included in the action which made them associate members: Caso Automotive Equipment Company, Mexico City; Jose Creixell, Mexico City; Bueno y Fernandez, Sucs. S. A., Mexico City: Carrasco y Carbonell, Sucs. S. A., Mexico City; Pedro Calderon, Monterrey, and Russell Kneeland Company, Mexico City.

The directors also approved the applications for membership of the United Motor Service, Inc., Detroit, in Division "A," and of Fischer's Surfa Saver, Inc., Cincinnati, in Division "B."

NEW TRAILER LIGHTING LAW IN SOUTH CAROLINA

Columbia, S. C., July 7.—Plans are being made to vigorously enforce the new truck and trailer lighting law, according to W. V. Sutherland, director of the motor vehicle division. The law, recently approved by Gov. I. C. Blackwood, provides that trucks of two tons or more shall carry a green light on the extreme front corners and a red light on the extreme rear corners in addition to the regular headlights and the taillight. Trucks with trailers must show a red light on the rear of the trailer, thus requiring seven and sometimes eight lights on the larger commercial vehicles.

Nation-wide, over-night parts service for STUDEBAKER DEALERS



BY this network of factory parts depots Studebaker provides over-night service to practically every point in the United States. Stocks at South Bend are worth more than $5,000,000. In the other nine locations an additional $2,000,000 worth are available.

This parts stock policy has been followed by Studebaker for many years. *It saves Studebaker dealers from tying up as much capital in a parts stock* as would otherwise be necessary to supply owners efficiently. It simplifies ordering.

Here is another side to the co-operation "America's Friendliest Factory" extends its dealers that they may sell to the public at a profit the cars they buy from the corporation.

Studebaker

AMERICA'S FRIENDLIEST FACTORY

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday and Monday by
AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION,
350 Hudson St., New York, N. Y.
C. J. Elder, President. H. A. Tarantous, Vice-President. Alexander Johnston, Secretary.

Entered as second-class matter August 27, 1925, at the post office at New York, N. Y., under the Act of March 3, 1879.
350 Hudson St., New York, N. Y. Telephone CA nal 6-1000

Member A. B. C.

Mail subscriptions to CIRCULATION DEPARTMENT 350 Hudson St.
Subscription Rates—One year, $12.00; two years, $20.00, for United States and Canada, also Mexico, Cuba and Panama.
To Other Countries—One year, $15.00; two years, $26.00. Single copies, 5 cents.

WEDNESDAY, JULY 8, 1931

ADVERTISING AND BUSINESS HEADQUARTERS

Harry A. Tarantous, Business Manager. 350 Hudson St., New York, N. Y.
George M. Slocum, Manager Detroit Bureau, 427-8 Fisher Building, Detroit, Mich., phone Empire 3500; Willard R. Cotton, Western Manager, 333 North Michigan Ave., Chicago, Ill., phone Central 5936; Metz B. Hayes, New England Manager, Little Building, Boston, Mass.; Blanchard Nichols & Coleman, American National Bank Building, San Francisco, Cal.; Lincoln Building, Los Angeles, Cal.; 1037 Henry Building, Seattle, Wash. Address ALL advertising and business correspondence to 350 Hudson St., New York City.

EDITORIAL DEPARTMENT

350 Hudson St., New York, N. Y. Telephone CA nal 6-1000
Alexander Johnston, Editor. William C. Callahan, News Editor.
Statistical Department (registrations and specifications), P. J. Robas, statistician; C. J. Alexander, sales analyst. Engineering Department, A. Benson Carleton, technical editor; J. Russell Walsh, engineering editor. Merchandising Department, Charles S. Zack, editor. Art Department, John Bauersfeld, director.
Detroit Bureau, Chris Sinsabaugh, editor, 427-8 Fisher Building, Detroit, Mich. Telephone Empire 3500. Contributing editor, John C. Wetmore.

Can Farmers Afford Cars?

TO us the question is about as sensible as any of the following: "Can farmers afford to eat?," "Can farmers afford to marry?," "Are farmers people?"

Yet Charles N. Edge, in the current issue of World Petroleum, dips into the statistical bucket and drags out figures which convince him that farmers in this country generally have no business owning cars. He asserts further that cars owned by farmers now have been paid for largely by increased mortgages on their places.

Mr. Edge reckons the cost of operating the average farm-owned car at $411 a year. This works out at $10,000,000,000 a year for the country as a whole, or $85 per person. The number of cars owned by farmers gives us an average of 0.85 of a car per farm. The maintenance of the farm-owned cars, therefore, would be about $350 a year.

Now, Mr. Edge reckons the income per farm in this country at $2,150 a year. Expenses, including interest on indebtedness and value of the farm plant he places at $1,057, leaving a net income of $1,093. Living expenses for the average farm Mr. Edge computes at $1,397, this including the expenses of operating a car. This leaves a net deficit of $304 per annum for the average farm family in this country.

Next Mr. Edge estimates that with farmers buying about 25 per cent. of the cars sold each year in this country, during the years from 1910 to 1930 invested about $7,000,000,000 in this motor transportation. During that period mortgages on farms fully owned by their operators increased about $10,000,000,000.

All this is interesting, and from it we might draw the conclusion that the farmers of the United States are plunging straight to the "demnition bowwows." But just to be contrary we believe that Mr. Edge has left an important factor out of his calculations. While the farmer was investing $7,000,000,000 in automobiles and plastering $8,000,000,000 in increased mortgages on his plant, what was he doing professionally. In 1910 the total value of farm products in this country was $7,191,000,000. In 1929, the fiscal year in this case ending June 30, the value of farm products was $12,527,000,000. We might deduce from this that the investment of $7,000,000,000 in motor equipment had increased the value of farm products more than it had increased the size of the rural mortgage total.

From the financial aspect of motor transportation, Mr. Edge proceeds to a discussion of one phase of its social contribution to or subtraction from our national life, as the reader views it. He finds a relation between the increase in the use of motor vehicles and the fall in the birth rate. In the period from 1915 to 1921 our American birth rate, he states, was 24.2. In 1930 it was 18.3. Marshalling his figures, Mr. Edge finds that during the period from 1922 to 1930 each 100 motor cars manufactured represents a loss in children from our population of 3.2.

We have heard the motor vehicle accused of many crimes, but this is certainly a novel misdemeanor. It might be noted, however, that during the years from 1920 to 1929 the birth rate of France has dropped from 21.3 to 17.7, that of Italy from 31.8 to 25.7, that of Germany from 25.9 to 17.9 and that of England from 25.5 to 16.3. In none of these countries has the use of motor transportation increased in anywhere near the ratio that has held in America.

Statistics are just about as tricky as circumstantial evidence. In forming any conclusion based on statistical information, the correctness of the result will depend first of all on the inclusion of all factors that have a bearing on the case. In our present prohibition embroglio, wets and drys offer contrasting sets of figures, proving to the satisfaction of each camp the inherent righteousness of its own position.

It all depends on what you want to find in statistics, just what you will get from those rollicking columns of figures.

EMPLOYMENT GAINS IN MERIDEN PLANTS

Meriden, Conn., July 7.—A steady increase in employment among automotive plants of the Meriden industrial area is noted by the Meriden Manufacturers Association in a recent survey. Several Meriden plants will reduce their summer shutdown period this year, preliminary reports indicate. Figures for June employment have not yet been compiled, but it is understood that a substantial gain will be shown. The uptrend has been gradual but steady through the spring months.

The Bassick Company, which manufactures automobile locks and ball bearings, closed for July Fourth only, and the Connecticut Telephone and Electric Company, whose Tiffany division is devoted to the manufacture of automotive ignition devices and other parts, was shut down only for three days.

The New Departure Company's Meriden plant, producing ball bearings, is reported as particularly busy at present, working full time, and officials are inclined to doubt whether there will be any shutdown at all this summer.

Cuno Engineering Corporation, automobile accessories, is now employing more hands than on the first of the year, and the plant will be closed for three days only, according to present plans.

Other factories in the city, as a rule, will close for a two weeks period this month, although in practically all of them certain departments will be kept in operation, it is understood.

SURVEY OF COMMERCIAL VEHICLE OPERATION IS MADE IN NEW JERSEY

Trenton, N. J., July 7.—The state traffic commission estimates approximately 4,155,000 New Jersey commercial vehicles compared to 2,300,000 New York vehicles and 1,189,000 Pennsylvania trucks entered or left New Jersey since the first of the year.

A survey conducted by the commission from June 10 to 17 at the request of Governor Larson, dealt with vehicles carrying license plates of the three states and using the major crossings of the Hudson, Arthur Kill, Kill von Kull and Delaware Rivers. Figures for 1931 to date were not secured by this survey but were based on estimates of the Port of New York Authority.

The commission's check for the week in June, however, also showed there were "considerably more" New Jersey vehicles entering the two adjoining states than vehicles of these states entering New Jersey. Although the number of crossings studied approximated only 60 per cent. of the total it was estimated more than 90 per cent. of the total commercial truck traffic entering or leaving New Jersey traveled via the crossings studied.

COMING EVENTS

JULY

19—**Nurburg-Ring, Rhineland, Germany.** Automobile Club of Germany, grand prize race

SEPTEMBER

1- 3—**Cleveland, O.** Hotel Statler, Society of Automotive Engineers, twentieth annual aeronautical meeting in conjunction with National Air races.
8-17—**Utrecht, Holland.** Utrecht Fair, bus and truck show.
16-17—**Atlantic City, N. J.** National Petroleum Association, annual meeting, Hotel Traymore.
20-26—**Springfield, Mass.** Eastern States Exposition.
21-25—**Boston, Mass.** American Welding Society, meeting.
28-29—**Atlantic City, N. J.** National Association of Motor Bus Operators, fifth annual meeting, Hotel Ambassador.
26-Oct. 2—**Atlantic City, N. J.** American Electric Railway Association, annual meeting.

OCTOBER

1-11—**Paris, France.** International Automobile Salon.
2- 3—**Houston, Tex.** American Institute of Mining and Metallurgical Engineers, petroleum division meeting
12-16—**Chicago, Ill.** National Safety Council.
14-16—**Pittsburgh, Pa.** Society of Industrial Engineers, convention.
15-24—**London, England.** International Motor Exhibition, Olympia Hall.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

Contemporary Comment

IN these closing days of a great depression, loyalty between manufacturer and jobber—each to the other—has a deeper meaning than ever before, nevertheless is being submitted to greater tests than ever before.

If the loyalty of the manufacturer to his jobber is to be measured by the yardstick of standing squarely back of him in resistance to offers of greater volume made by jobber competition, then it is undeniably true that the loyalty of the jobber to his manufacturer should be measured by the same identical yardstick of the jobber standing shoulder to shoulder with his manufacturer in resistance to offers of greater inducements made by manufacturer competition.

The jobber who is honestly doing his utmost for his manufacturer has earned the revenue from the asset of distribution he has created, and cannot survive without a normal profit.

The manufacturer who is honestly giving his jobber his utmost margin has earned the revenue from that same distribution that has been created, and cannot survive without a normal profit.

The action and the reaction are equal.

A manufacturer, who, in his eagerness for additional distribution, indulges in unethical practices or secret concessions, invites destruction, because business secrets become public boasts and are soon emblazoned in words of incendiary fire to the trade, and normal profits would quickly disappear in the resulting demands for equal rights.

A jobber who in his eagerness for additional profits—other than normal—subjects his manufacturer to threats of change of allegiance, places that manufacturer in the precarious position of deciding unwisely and crashing the structure he has built on "honesty to all," or else standing firmly to his stable policies, thereby perhaps losing a valuable account to a less scrupulous competitor.

Human instinct is to buy an article, or a product, that is better than all others that are good.

Yet some manufacturers indulge in the mistake of advertising their products as better than others, which they pronounce as bad.

A manufacturer should exploit his product to the skies on merit and service, but to exploit it by provocative comparison with and derogatory remarks about his competitor's products, or those which are kindred, is not only in defiance of the Federal laws, but equally in violation of the established rules of business ethics.

It is of record that the Federal Trade Commission has issued "cease and desist" orders for such breaches bordering on trade restraint.

It is of record that the American Association of Advertising Agencies has required of trade and class publications of the different industries to decline to publish provocative, derogatory and comparative advertising copy.

The N. S. P. A. seeks not only the support of its members for this measure, but also that of all automotive trade publications, as evidenced by Article 14 of the N. S. P. A. Code of Ethics, approved at the 1930 convention by the entire member body, and without a dissenting vote.

Article 14—Objectionable Advertising—"We disapprove of all forms of disparaging, provocative and comparative advertising and publicity, because it lessens public confidence in the products mentioned."—**E. P. Chalfant in N. S. P. A. News.**

* * *

THE retail business man who is puzzled as to where to find definite information to guide him in deciding how much to spend for advertising will find help in some figures recently released by the United States Department of Commerce.

These figures, covering the sales and advertising experiences of 376 retail businesses in the Gulf Southwest, show an average advertising expenditure of 4.32 per cent. of net sales. However, it is not safe to conclude from this average that 4.32 per cent. of sales is the ideal advertising expenditure, for an analysis of the report discloses that those stores which budgeted the largest percentage of sales for advertising purposes did the greatest volume.

Thus three great stores with a business of more than $10,000,000 each and eleven with net sales running between $4,000,000 and $10,000,000 had an average advertising appropriation of 5.39 per cent. of sales. In other words, these stores with the greatest sales volume spent a considerably larger per cent. of their income for advertising than did the great bulk of less successful businesses which are content to struggle along making a more meager bid for patronage.

The answer seems to be—if you want business—ask for it. And ask for it boldly.

If these figures mean anything, they mean that unless you are spending a sum equal to at least 4.32 per cent. of your sales volume in intelligent advertising effort you are making a much more feeble bid for success than the average retail business analyzed by this government survey.—**India Owl.**

The answer to—

HOW CAN THEY DO IT?

Many in the Industry are still baffled at the utter lowness of De Vaux prices:—for more than 70 Horsepower, for 113-Inch Wheelbase and 58-Inch Rear Car Tread, for Quiet Second with Constant-Mesh Helical Gears, for Hayes Steel-and-Wood Bodies with Insulation, for 6-Inch Frame and 2¼-Inch Flange, for Houdaille Hydraulic Shock Absorbers and other big-car features. Here is the answer.

1. ***An INDEPENDENT Company.*** **De Vaux-Hall Motors Corporation has no affiliation in any way whatsoever, directly or indirectly, with any other organization at home or abroad. Consequently there is freedom in determining merchandising policies!**

2. ***Completely Financed.*** **No stock is offered for public sale. Norman de Vaux, President; Col. Elbert J. Hall, Vice-President; and George R. Scott, Vice-President in Charge of Production, are the principal stock-holders.**

3. ***Bed-Rock Operating Costs.*** **There are no frills and no leaks. Every square foot of factory space *produces* and every person *works*—from Norman de Vaux and Col. Hall on down.**

4. ***Materials Purchased Advantageously.*** **The corporation was launched at the height of history's greatest "Buyer's Market" for raw materials. Liquidity of finances increases this advantage.**

5. ***Rapid Turn-over of Inventories.*** **In all probability, a record is being made in the number of times inventory is turned-over during the fiscal year.**

•

***There is no substitute for* GOOD Management**

•

***NOW*—the best time to join America's fastest-growing automobile manufacturer! Get details at once.**

Among Recent Appointments Are:

Name	Territory
North Georgia Motor Co.	Athens, Ga.
Beemer and Edgcombe	London, Ontario, Canada
Bourdeau Motor Co.	Missoula, Mont.
T. A. Bryson & Sons	Savannah, Ga.
Capital Motor Car Co.	Columbus, Ohio
Cox-Morton Motor Co.	Charlestown, W. Va.
Davis Motor Co.	Knoxville, Tenn.
De Vaux-Cincinnati Co.	Cincinnati, Ohio
Louis J. Fenberg	Findlay, Ohio
Marmon Sales Co.	Birmingham, Ala.
Murphy Motors	New York City
Naayem Motor Import Co.	Beyrouth, Syria
National Motor Car Co.	Lincoln, Neb.
G. H. Reed Motors	Tucson, Ariz.
Reo-Yakima Corp.	Yakima, Wash.

70 to 80 Miles An Hour

De Vaux 6-75

. . . powered by the famous HALL ENGINE *developing more than 70 Horsepower*

PRICES RANGE FROM

$595 to $795

F. O. B. GRAND RAPIDS
Special Equipment Extra

CONFIDENTIAL INQUIRY COUPON

De Vaux-Hall Motors Corp.,
Grand Rapids, Michigan,
or/Oakland, California.

Gentlemen: Send me complete information about the De Vaux Franchise.

Name_____

Address_____

Now Handling_____

New Dealers Appointed

MONTANNA

Studebaker—Libby Motors, Inc., Libby.

Auburn—Smith Motor Company, Helena.

Durant—Star Butte Sales Company, Butte; Charles G. Graves Company, Missoula; Red Butte Garage, Dell; Associate Dealers under Star Butte Sales Company.

NEBRASKA

Hudson—C. B. Clark, North Loup; Anthony Thill, Ord.

Willys-Overland—Western States Garage, Omaha; Albert Johnson, Richland.

Graham - Paige—Loder & Sons, Waverly.

Auburn—H. & S. Motor Company, Friend; Brewster Motor Company, Wahoo.

NEW HAMPSHIRE

Auburn—Russell Motor Car Company, Claremont.

NEW JERSEY

Willys - Overland—Tri-Boro Motors, Inc., Bergenfield; Lester H. Ingles Company, Hawthorne; Henshall & Ziegler, Paterson; Oberlies Motor Company, Union City; Hayunga Square Sales and Service, Wyckoff; Henry S. Radcliffe, Inc., Salem.

Auburn—E. F. Buckley, Inc., Clifton; Bennett Brothers, Spotswood; Jersey City Auburn Cord Company, Jersey City; Expert Garage, Rahway; Cole's Garage, Stewartsville; J. W. Mason & Sons, Newark; Jensen & Bedell, Inc., Elizabeth; City Line Garage, Egg Harbor.

NEW YORK

Graham-Paige—C. W. Conrad, Cortland; Chautauqua Motor Corporation, Jamestown; Kissling Motors, Inc., White Plains; H. F. Lovette Motor Car Company, Inc., Utica.

Hudson—Ulster Heights Garage, Ellenville; Sage Garage Company, Inc., Mechanicville.

Studebaker—Park Garage, Cornwall-on-Hudson.

Willys-Overland—Axel Petersen, Hastings; Oak Garage and Supply Corporation, Millerton; Sweeney Motor Sales, Inc., Pleasantville; Warren Motor Sales, Glens Falls; Kline's Garage, Hudson; L. L. Towner & Sons, Addison; J. A. Allen, Bath.

Auburn—Auburn Motor Car Company of Yorkville, Inc., New York; George F. Barton, Corning; Geneva Auburn Company, Geneva; Tupper Lake Auburn Sales, Tupper Lake; Palmyra Garage, Palmyra; Guy L. Kinsman, Waverly; Falls Garage Corporation, Niagara Falls; Auburn Delaware Motors, Inc., Buffalo; Cary W. Willis, Webster; L. A. Walker, Albion; Every's Sales and Service, Kingston; Milton R. Witbeck, Inc., Albany.

NORTH CAROLINA

Studebaker—B-N Motor Company, Raleigh.

Auburn—Thomas C. Hunt Motors Company, Greensboro.

OHIO

Studebaker—William McKarns, Defiance; Jolliff & Plemons, Marion.

Willys-Overland—Western Motor Company, Hamilton; Arnoett Auto Company, Kenton; Wymer Motor Sales, McConnelsville.

Auburn—M. G. Maxwell Company, Medina; Hamblin Motor Sales, Lakewood; Pomeroy Motor Sales Company, Painesville; C. W. Ditmer & Sons, Dayton; Valentine Motor Sales, Defiance; Hamblin Motors, Lakewood; Harris Garage and Storage Company, Salem; Larson Motor Sales Company, Amherst; H. L. Gordon, Antwerp; Auburn Sales Company, Wapakoneta.

Graham-Paige—C. H. Covill Motor Sales, Inc., Cleveland; Heights Motor Sales Company, Cleveland; Trautman's Garage, Columbiana, West Avenue Garage, Elyria; Leibach Auto Sales, Sandusky; Zimmerman Motor Company, Fremont.

Hudson—Bob Andrews, Shelby.

BUILDING ADDITION

Newark, N. J., July 7.—The National Lock Washer Company, 40 Hermon St., this city, is erecting an addition to its plant, to take care of blacksmithing work. The concern manufactures washers for the automotive industry.

Passenger Car Equipment and Accessories

NAME AND MODEL	Speedometer	Clock	Fuel Gauge on Dash	Lock	Spark Plugs	Battery	Heat Indicator	*Cig. Lighter	Smoking Set	Vanity Set	Make of Body Finish Used	Stop Light	Parking or Side Light	Safety Glass	Heater	Front Bumper	Rear Bumper	Wire Wheels	Shock Absorber
Auburn 8-98	Ste	—	K-S	Ele	Cha	USL	—	Cas	No	No	Mim	Ind	Ind	—	—	Cen	Cen	Day	Lov
Austin	NE	—	K-S	BS	Cha	USL	—	—	—	—	Duc	—	—	—	—	Cen	Cen	—	Own
Buick 8-50	AC	—	K-S	Her	AC	**	AC	—	Tern	—	Duc	Gui	Gui	—	—	Wol	Wol	K-H	Lov
Buick 8-60	AC	—	K-S	Her	AC	**	AC	—	Tern	—	Duc	Gui	Gui	—	—	Wol	Wol	K-H	Lov
Buick 8-80	AC	—	K-S	Her	AC	**	AC	—	Tern	—	Duc	Gui	Gui	—	—	Wol	Wol	K-H	Lov
Buick 8-90	AC	—	K-S	Her	AC	**	AC	—	Tern	Tern	Duc	Gui	Gui	—	—	Wol	Wol	K-H	Lov
Cadillac V-8	AC	Jag	Mot-M	DR	AC	DR	AC	Cas	Tern	Tern	Duc	Hal	Hal	Sec	Kel	Eat	Eat	K-H	Lov
Cadillac V-12	AC	Jag	Mot-M	DR	AC	Ex	AC	Cas	Tern	Tern	Duc	Hal	Hal	Sec	**	Eat	Eat	K-H	Lov
Cadillac V-16	AC	Jag	Mot-M	DR	AC	Ex	AC	Cas	Tern	Tern	Duc	Gui	Hal	Sec	*	Gen	Gen	K-H	Lov
Chevrolet	AC	—	AC	DR	AC	*	AC	—	Tern	—	Duc	Gui	Gui	—	*	†Own	Own	Own	Lov
Chrysler 6	NE	—	Mot-M	DR	AC	Wil	Yes	—	—	—	Ditz	Cor	Cor	Opt	—	—	—	—	Lov
Chrysler 8	NE	—	Mot-M	DR	AC	Wil	Mot-M	—	—	—	Ditz	Hal	Hal	Opt	—	—	—	—	Lov
Chrysler Imp. 8	AC	—	Mot-M	DR	AC	Wil	Mot-M	Cas	—	—	Ditz	Hal	Hal	Opt	—	—	—	—	Hou
Cord Front Drive	Ste	No	Mot-M	DR	Cha	USL	Ster	Cas	GR	No	Mur	Ind	Ind	—	No	ASP	ASP	Day	Hou
De Soto Six	NE	No	Mot-M	DR	AC	Wil	Yes	No	Yes	Yes	Duc	Cor	Hal	—	No	Yes	Yes	—	Lov
De Soto Eight	NE	No	Mot-M	DR	AC	Wil	Mot-M	No	Yes	Yes	Duc	Cor	Hal	—	No	Yes	Yes	—	Lov
De Vaux Six	Ste	No	Mot-M	Yale	Cha	Pre	Mot-M	No	No	No	Duc	JB	JB	—	No	Gen	Gen	MotoW	Hou
Dodge Six	NE	—	AC	DR	AC	Wil	AC	—	VS	VS	Ditz	Cor	Cor	Opt	—	Yes	Yes	Budd	Lov
Dodge Eight	NE	—	AC	DR	AC	Wil	AC	—	VS	VS	Ditz	Cor	Cor	Opt	—	Yes	Yes	Budd	Lov
Durant 610	NE	No	Mot-M	Aut-L	Cha	USL	Mot-M	NE	No	No	Rin	Cor	No	—	—	Bad	Bad	MotoW	Mon
Durant 612	NE	No	Mot-M	Aut-L	Cha	USL	Mot-M	NE	No	No	Rin	Cor	No	—	—	Eat	Eat	MotoW	Mon
Durant 614	NE	No	Mot-M	Aut-L	Cha	USL	Mot-M	NE	GR	No	Rin	Cor	Yes	—	—	Eat	Eat	MotoW	Mon
Durant 619	NE	No	Mot-M	Aut-L	Cha	USL	Mot-M	No	No	No	Rin	Cor	No	—	—	Bad	Bad	MotoW	Mon
Essex Super Six	Ste	—	Mot-M	Ele	AC	Ex	Mot-M	—	—	—	Ditz	JB	JB	—	—	Own	Own	†MotoW	Mon
Ford A	Var	—	Own	Ele	Cha	Own	—	—	—	—	—	Own	—	Tri	—	Own	Own	Own	Hou
Fr'klin S 15 Trans.	NE	Jag	K-S	DR	Cha	USL	—	Cas	*	GR	*	Cor	Cor	**	—	CG	CG	MotoW	Lov
Fr'klin S 15 De L.	NE	Wal	K-S	DR	Cha	Nat	—	Cas	*	GR	*	Cor	Cor	**	—	CG	CG	MotoW	Lov
Graham Bros. 6	NE	—	K-S	Her	Cha	Wil	Mot-M	—	—	—	*	Hal	Own	—	—	ASP	ASP	MotoW	Lov
Graham Stan. 6	NE	—	K-S	Her	Cha	Wil	Mot-M	—	GR	—	*	Hall	JB	LOF	—	ASP	ASP	MotoW	Lov
Graham Sp. 6	NE	—	K-S	Her	Cha	Wil	Mot-M	—	GR	—	*	Hall	JB	LOF	—	ASP	ASP	MotoW	Lov
Graham Sp. 8	NE	—	K-S	Her	Cha	Wil	Mot-M	—	GR	—	*	Hall	JB	LOF	—	ASP	ASP	MotoW	Lov
Graham Cust. 8	NE	*	K-S	Her	Cha	Wil	Mot-M	Cas	VS	—	*	Hall	JB	LOF	—	ASP	ASP	MotoW	Lov
Hudson Greater 8	Ste	—	Mot-M	Ele	AC	Ex	Mot-M	—	—	—	Ditz	Hal	Hal	Dup	—	Own	Own	†MotoW	Gab
Hupmobile Cen. 6	Ste	—	Mot-M	Ele	Cha	Wil	Mot-M	—	VS	—	Val	Cor	Cor	LOF	—	—	—	K-H	Gab
Hupmobile Cen. 8	Ste	—	Mot-M	Ele	Cha	Wil	Mot-M	—	VS	—	Val	Hal	Hal	LOF	—	—	—	K-H	Gab
Hupmobile U	Ste	—	Mot-M	Ele	Cha	Wil	Ster	Cas	VS	—	Val	Hal	Hal	LOF	—	—	—	K-H	Gab
Hupmobile H	Ste	—	Mot-M	Ele	Cha	Wil	Ster	Cas	VS	—	Val	Hal	Hal	LOF	—	—	—	K-H	Gab
Hupmobile C	Ste	—	Mot-M	Ele	Cha	Wil	Ster	—	VS	—	Val	Hal	Hal	LOF	—	—	—	K-H	Gab
La Salle V-8	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	Tern	Duc	Hal	Hal	Sec	—	Eat	Eat	K-H	Lov
Lincoln 8	NE	Thom	K-S	Her	Cha	Ex	Mot-M	Cas	Cuno	Yes	*	Hal	Own	Tri	—	Bif	Bif	Own	Hou
Marmon 70	Ste	No	Mot-M	DR	Cha	Nat	Mot-M	No	No	No	Val	Cor	Cor	Opt	No	Gen	Gen	Day	Gab
Marmon 88	NE	Ster	Mot-M	DR	Cha	Ex	Mot-M	Cas	Yes	Yes	Val	Cor	Cor	Dup	No	Gen	Gen	Day	Gab
Marmon 16	—	Ster	Mot-M	DR	Cha	Ex	Mot-M	Cas	Yes	Yes	Ditz	Hall	Hall	Dup	No	Gen	Gen	Day	Gab
Nash Nine 60	Ste	—	K-S	Her	AC	USL	K-S	—	Tern	—	*	**	**	Opt	—	Bad	Bad	†MotoW	Lov
Nash Nine 70	Ste	—	K-S	Her	AC	USL	K-S	—	VS	—	*	**	**	Opt	—	Bad	Bad	†MotoW	Lov
Nash Nine 80	Ste	—	K-S	Her	AC	USL	K-S	—	VS	—	*	**	**	Opt	—	Eat	Eat	†MotoW	Lov
Nash Nine 90	Ste	Borg	K-S	Blos	AC	Ex	K-S	Cas	VS	—	*	**	**	Opt	—	Eat	Eat	†MotoW	Lov
Oakland 8	AC	—	AC	BS	AC	DR	—	—	Tern	Tern	Duc	Gui	Gui	—	—	Own	Own	Moto-W	Lov
Oldsmobile	AC	—	AC	DR	AC	Wil	AC	—	Tern	—	Duc	Gui	—	—	—	—	—	MotoW	Lov
Packard 901	NE	Jag	K-S	—	Cha	Pre	Mot-M	Cas	—	—	Ditz	Hal	—	LOF	—	Cen	Cen	MotoW	Lov
Packard 902	NE	Jag	K-S	—	Cha	Pre	Mot-M	Cas	—	—	Ditz	Hal	—	LOF	—	Cen	Cen	MotoW	Lov
Packard 903	NE	Jag	K-S	—	Cha	Pre	Mot-M	Cas	—	—	Ditz	Hal	—	LOF	—	Cen	Cen	MotoW	Lov
Packard 904	NE	Jag	K-S	—	Cha	Pre	Mot-M	Cas	—	—	Ditz	Hal	—	LOF	—	Cen	Cen	MotoW	Lov
Peerless Stand. 8	AC	—	Mot-M	BS	Cha	Wil	Mot-M	Cas	—	No	Val	Cor	Cor	Dup	No	Cen	Cen	Bimel	Gab
Peerless Mast. 8	AC	Ster	Mot-M	BS	Cha	Wil	Mot-M	Cas	—	No	Val	Cor	Cor	Dup	—	Eat	Eat	Bimel	Gab
Peerless Cust. 8	AC	Ster	Mot-M	BS	Cha	Wil	Mot-M	Cas	GR	No	Val	Cor	Cor	Dup	—	Eat	Eat	Bimel	Gab
Pierce-Ar'w 41-2-3	NE	Wal	**	Her	Cha	Wil	**	NE	VS	VS	Mim	—	Gui	LOF	—	Eat	Eat	Budd	Lov
Plymouth	NE	—	Yes	Sha	AC	Wil	—	—	—	—	Duc	Cor	Cor	—	—	Gen	Gen	‡	Lov
Pontiac	AC	—	AC	BS	AC	DR	—	—	Tern	Tern	Duc	Gui	Gui	—	—	Own	Own	K-H	Lov
Reo Royale 8-35	Ste	Elgin	K-S	DR	Cha	Wil	AC	Yes	Yes	No	†	Gui	Gui	†	No	CG	CG	MotoW	Lov
Reo Royale 8-31	Ste	No	K-S	DR	Cha	Wil	AC	Yes	Yes	No	†	Gui	Gui		No	CG	CG	MotoW	Lov
Reo 8-21	Ste	No	K-S	DR	Cha	Wil	K-S	No	No	No	—	*	*	No	No	CG	CG	—	Lov
Reo 6-21	Ste	No	K-S	DR	Cha	Wil	K-S	No	No	No	—	*	*	No	No	CG	CG	—	Lov
Reo Fly'g Cl'd 625	Ste	—	K-S	DR	Cha	Wil	AC	Yes	Yes	No	†	—	Gui	†	No	CG	CG	MotoW	Lov
Studebaker Six	Ste	No	K-S	Yale	Cha	Wil	Ste	—	No	No	*	Ind	Ind	—	No	Ste	Ste	K-H	Lov
Studebak'r Dict. 8	Ste	No	K-S	Yale	Cha	Wil	Ste	No	—	No	*	Ind	Gui	—	No	Ste	Ste	K-H	Lov
Stud. Com. 8-70	Ste	No	K-S	Her	Cha	Wil	Ste	—	—	No	*	Gui	Gui	†	No	Ste	Ste	K-H	Lov
Stud. Pres. 8-80	Ste	NH	K-S	Her	Cha	Wil	Ste	Cas	*	No	*	Gui	Gui	†	No	Ste	Ste	K-H	Hou
Stud. Pres. 8-90	Ste	NH	K-S	Her	Cha	Wil	Ste	Cas	*	No	*	Gui	Gui	†	No	Ste	Ste	K-H	Hou
Stutz LA	Ste	Wal	Mot-M	DR	Cha	Pre	Mot-M	Cas	No	Lin	Val	Ind	—	Dup	—	Buck	Buck	MotoW	Gab
Stutz MA	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Lin	Lin	Val	Ind	—	Dup	—	Stan	Stan	K-H	Gab
Stutz MB	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Lin	Lin	Val	Ind	—	Dup	—	Stan	Stan	K-H	Gab
Stutz DV 32	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Lin	Lin	Val	Ind	Ind	Dup	—	Stan	Stan	K-H	Gab
Willys 97-98 D	NE	No	K-S	Aut-L	Cha	USL	No	No	*	No	*	Yes	Yes	Opt	No	*	*	†	Mon
Willys 8-80 D	NE	No	K-S	Aut-L	Cha	USL	Yes	—	Yes	No	*	Yes	Yes	Opt	No	*	*	†	Mon
Willys-K. 66D	NE	No	K-S	Aut-L	Cha	USL	Yes	—	Yes	No	*	Yes	Yes	Opt	No	*	*	†	Mon

KEY TO ABBREVIATIONS USED IN THIS TABLE

SPEEDOMETER

AC—AC Spark Plug Co., Flint, Mich.
NE—North East Appliance Corp., Rochester, N. Y.
Ste—Stewart-Warner Speedometer Corp., Chicago.
Var—Various makes.

CLOCK

Borg—Borg Clock Co.
Elgin—Elgin Watch Co.
Jag—Jaeger Watch Co., New York city.
NH—New Haven. See Phi.
Phi—Phinney-Walker Co., New York city.
Ster—Sterling Clock Co., La Salle, Ill.
Thom—Seth Thomas Clock Co.
Wal—Waltham Watch Co., Waltham, Mass.
*Optional.

FUEL GAUGE

AC—AC Spark Plug Co., Flint, Mich.
K-S—King Seeley Corp., Ann Arbor, Mich.
Mot-M—Moto Meter Gauge and Equipment Corp., Long Island City, N. Y., and La Crosse, Wis.
**—Pierce-Arrow uses both U. S. and King Seeley.

LOCK

Aut-L—Electric Auto-Lite Co., Toledo.
BS—Briggs-Stratton Co., Milwaukee.
Blos—Blossom, Delco-Remy Corp., Anderson, Ind.
Ele—Mitchell Specialty Co., Holmesburg, Pa.
DR—Delco-Remy Corp., Anderson, Ind.
Her—Hershey Mfg. Co., Chicago.
Sha—Shaler Lock Co., Milwaukee, Wis.
Yale—Yale & Towne Mfg. Co.

SPARK PLUG

AC—AC Spark Plug Co., Flint, Mich.
Cha—Champion Spark Plug Co., Toledo, O.

BATTERY

DR—Delco Remy Corp.
Ex—Electric Storage Battery Co., Philadelphia.
Nat—National Lead Battery Co., St. Paul Minn.
Pre—Prest-O-Lite Co., Indianapolis, Ind.
USL—U S L Battery Corp., Niagara Falls, N. Y.
Wil—Willard Storage Battery Co., Cleveland, O.
*Various makes—Exide, Willard, Delco-Remy and USL.
**Both Exide and Delco-Remy used.

HEAT INDICATOR

AC—AC Spark Plug Co., Flint, Mich.
Mot-M—Moto Meter Gauge and Equipment Corp., Long Island City, N. Y., and La Crosse, Wis.
Ste—Stewart-Warner Speedometer Corp.
Ster—Sterling Clock Co., La Salle, Ill.
US—U. S. Gauge Co., N. Y. C.
**Using boh U. S. and AC.

CIGAR LIGHTER

*Cigar lighters in many cases are optional equipment, and are not standard on all models; the names of lighters shown indicate the makes supplied to various car makers.
Cas—Casco Products Corp., Bridgeport, Conn.
NE—North East Appliance Corp., Rochester, N. Y.

SMOKING AND VANITY SETS

GR—Grand Rapids Metalcraft Corp., Grand Rapids, Mich.
Lin—Linden.
VS—Van Sicklen Corp., Elgin, Ill.
Tern—Ternstedt Mfg. Co., Detroit, Mich.
Cuno—Cuno Engineering Corp., Meriden, Conn.
*Various makes.

BODY FINISH

Ditz—Ditzler Color Co., Detroit, Mich.
Duc—E. I. du Pont de Nemours & Co., Philadelphia.
MIM—Pittsburgh Plate Glass Co.
Mur—Murphy Varnish Co., Newark, N. J.
Rin—Rinched Mason Co.
Val—Valentine & Co., New York city.
*Various lacquers used.
†Using both Ditzler and Pratt & Lambert.

STOP AND PARKING LIGHTS

Cor—Corcoran Lamp Co.
Gui—Guide Lamp Corp., Anderson, Ind.
Hal—C. M. Hall Lamp Co., Detroit, Mich.
Ind—Indiana Lamp Corp., Connersville, Ind.
JB—The Jno. W. Brown Lamp Mfg. Co., Columbus, O.
*Using both Hall or Guide.
**Using both Corcoran and Brown.

SAFETY GLASS

Sec—Security, product of General Motors.
Tri—Triplex Safety Glass Co.
LOF—Libbey-Owens-Ford.
Dup—Duplate Corp.
Indestructo—Indestructo Glass Corp.
Opt—Optional.
**—Using both L-O-F and Indestructo.
*—Using both Security and Duplate.
†—Using both L-O-F and Duplate.

HEATER

Kel—Kelch made by Grand Rapids Metalcraft Corp., Grand Rapids, Mich.
*Optional.
**Not standard equipment on Cadillac V-12.

BUMPERS

ASP—Alloy Steel Products.
Bad—Badger Mfg. Corp., Milwaukee.
Bif—Biflex Corp., Waukegan, Ill.
Buck—See Cen.
CG—C. G. Spring and Bumper Company.
Cen—Central Brass & Fixture Co., Springfield, O. Also makers of Buckeye bumpers.
Eat—Eaton Axle and Spring Co., Cleveland, O.
Gen—General Spring and Bumper, Detroit.
Stan—Standard Steel Spring Corp.
Ste—Stewart-Warner Speedometer Corp.
Wol—Wolverine Bumper & Spec. Co.
†Extra equipment.
*Optional.

WIRE WHEELS

Bimel—Bimel Spoke and Auto Wheel Co., Portland, Ind.
Budd—Budd Wheel Co., Detroit.
MotoW—Motor Wheel Corp., Lansing, Mich.
Day—Dayton Wire Wheel Co., Dayton, O.
K-H—Kelsey-Hayes, Detroit, Mich.
‡Using both Kelsey-Hayes and Motor Wheel Corp.
†Not standard equipment.

SHOCK ABSORBERS

Gab—The Gabriel Company, Cleveland.
Hou—Houde Engineering Corp., Buffalo, N. Y.
Lov—Delco Products Corp., Dayton, O.
Mon—Monroe Auto Equip. Mfg. Co., Monroe, Mich.

Production--Engineering--Factory

Methods Used for Welding Stainless Steel

Electric, Spot and Gas Methods May Be Used; Neutral Gas Flame Best; Accurate Regulators and Controls Necessary

By G. VAN DYKE
Manager, Special Steel Deparment, Joseph T. Ryerson & Son, Inc.

Allegheny metal is a chrome-nickel iron alloy containing approximately 18 per cent. chrome, 8 per cent. nickel and small amounts of manganese and silicon. The carbon in this alloy will vary from .15 to .06, depending on the class of work for which it is to be used, and also the method of manufacture by which it is to be fabricated.

Because this particular type of alloy lends itself readily to welding by the electric, gas or spot processes, its production has opened up a large field of application which was barred to other of the so-called "stainless steels," because they could not readily be welded.

Of all the various analyses of "stainless steel" which have been produced, the 18-8 type is the most useful, and finds the widest application, not only because of its weldability, but because it presents the greatest resistance to the greatest variety of corrosive attacks.

Since no material is really stainless in the true sense of the word, in determining the value of 18-8 or any other corrosion resisting alloys for a certain application, the metal should not be called upon to resist all types of corrosion, but rather should the question be raised as to whether the metal is sufficiently resistant to corrosion to satisfactorily take care of the particular job which is under consideration.

The corrosion resistance of an alloy depends not only on its composition, but also on the care taken in its manufacture and upon its structure. Bearing this in mind, it is very important that the welding of this alloy should be done in such a way that neither the analysis nor the structure of the metal will be changed, and for this reason the chemistry of the flame in gas welding is of vital importance.

The first consideration in gas welding Allegheny metal is to get the proper mixture of acetylene and oxygen. If an excess of oxygen is used, it will burn up or oxidize a considerable portion of the chromium, and this not only changes the analysis of the metal but produces oxides of chromium which will cause the metal to boil and produce welds which are porous and of low corrosion resistance value. If an excess of acetylene, which is a compound of hydrogen and carbon, is used, the molten metal will absorb a certain amount of the gas and the carbon content of the weld will thereby be raised. This increase in carbon content is very detrimental to the corrosion resistance and produces a brittle weld.

From what we have said it would appear that an exactly neutral flame with neither an excess of acetylene nor oxygen would be desirable, and if it were possible to get such a flame, it would probably be ideal. In actual practice, regulators are not sufficiently accurate to produce a truly neutral flame and, therefore, the lesser of two evils must be chosen, and the flame should be adjusted so as to give a very slight excess of acetylene, which is indicated in the flame by very short "feather tips" on the end of the combustion buttons. In gas welding this alloy, the torch should be held as close to the metal as possible, so as to push the flame down into the weld; and the rod should be held above the weld so that it will melt and drop down as you go along. Puddling should be avoided, as it tends to produce a porous weld. If the flame is properly adjusted and sufficient heat is used, the Allegheny metal rod will melt freely and will drop down in clean drops.

For those who like to use a flux, I recommend "Chromaloy" flux, which has a tendency to make the metal flow a little more freely and is of assistance in securing deeper penetration.

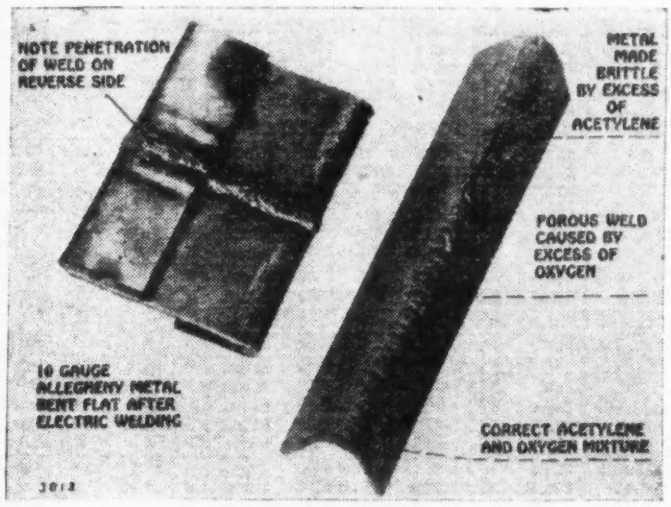
I would recommend the use of a tip one or two sizes smaller than would be used on the same gauge of steel, and, in most cases, about five pounds' pressure on both the acetylene and oxygen will be found sufficient.

It is essential that accurate regulators be used, so that a uniform mixture can be maintained continuously.

In electric welding Allegheny metal by the metallic air process we do not have to concern ourselves with flame chemistry as we do in gas welding. It is important, however, that the rod be of the right analysis and that the coating on the rod be of such a character that it will produce sound wells, deep penetration and a bead of equal corrosion resistance to the parent metal. The production of and coating of the rods is a technical matter, which is best left to the manufacturers of the metal, and if any good operator will bear the points mentioned in this article in mind he will be able to produce a good job.

In the first place, reversed polarity should be used. That is to say, that the electrode should be connected to the plus pole of the generator and the work or ground connected to the negative pole of the generator. It is well to use rather less power than would be used on a similar gauge of steel, although this is a point which is best worked out by each operator himself. Some

(Continued on Page 8)


NOTE PENETRATION OF WELD ON REVERSE SIDE
METAL MADE BRITTLE BY EXCESS OF ACETYLENE
POROUS WELD CAUSED BY EXCESS OF OXYGEN
10 GAUGE ALLEGHENY METAL BENT FLAT AFTER ELECTRIC WELDING
CORRECT ACETYLENE AND OXYGEN MIXTURE
3013

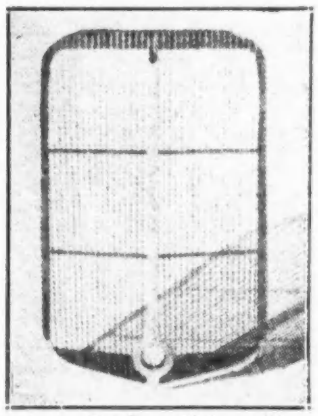
Examples of stainless steel welding

GOODYEAR INTRODUCES BEVEL EDGE PATCH TIRE REPAIR KIT

A new combination tube repair kit with ready-cut bevel patches has been introduced by the Goodyear Tire and Rubber Company, Inc. Each kit contains twelve patches, 1 inch by ¼ inch; 15 square inches of red gum rubber and a ¾ inch by 3 tube of cold patching cement.

A shop size combination is also available which contains 150 square inches of red gum rubber in one piece, a ¼ pint can of cement and 100 1 by ¼ inch patches.

SIX MANUFACTURERS ADOPT NEW LONG RADIATOR GRILLS



Long V-type radiator grill

This is one of the several new ornamental radiator grills that have just been perfected by the Long Manufacturing Company, Detroit, division of the Borg-Warner Corporation. It has already been accepted as standard equipment on six leading makes of cars. The grills are chrome plated and made in several designs in both the V-shape and flat front type.

G. E. AUTOMATIC TIME SWITCH ADAPTABLE TO MANY USES

A new time switch which will perform many functions automatically has been developed by the General Electric Company of Schenectady, N. Y.

According to the manufacturer it will turn lights on and off at any predetermined time before or after sunrise and sunset, and will make due allowances for geographical latitude and for the season of the year. It can be made to omit its operations on any desired days of the week. It can perform such operations as starting motors in the morning, starting and stopping them throughout the day, according to schedule, and shutting them down at the end of the day. It will care for industrial heating problems, since by its use, apparatus may be turned on early in the morning so as to be ready for the workmen when they arrive.

Not all the above duties can be performed by the one switch, but various designs are available for such different tasks.

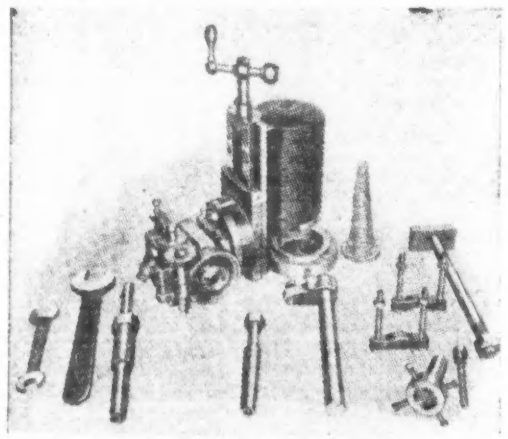
MORSE FLEXIBLE CONTROL CLAMPS TO STEERING POST

The O. K. flexible control with adjustable clamp for mounting on the steering column has been introduced by the Morse Manufacturing Company, Syracuse, N. Y. It is adaptable for operating radiator shutters, heater valves, carburetor chokes, etc. It includes four feet of flexible tubing and five feet of spring wire.

NOBLITT-SPARKS INTRODUCES NEW LINE OF MIRRORS

A new line of mirrors for truck, bus and passenger cars is now marketed by Noblitt-Sparks Industries, Indianapolis, Ind.

Millerette, a Milling Attachment for Lathes



THE GARRETT MILLERETTE

The Production Machine Tool Company, Cincinnati, O., is manufacturing the Garrett Millerette, a milling attachment for lathes manufactured by that company.

It is said to be adaptable for use in garages and maintenance shops where no milling machines are available. The attachment, it is claimed, is suitable for cutting keyways, indexing and gear cutting as well as other milling operations.

Three sizes are available.

M. E. A. FROWNS UPON UNOFFICIAL CLINICS

Chicago, July 7. — Automotive shows and clinics sponsored by groups other than local jobbers or local jobber organizations were disapproved by the board of directors of the Motor Equipment Association in a resolution adopted at its recent meeting in Chicago.

The resolution was adopted to express the attitude of the manufacturer members of the association, many of whom are regularly called upon to participate in shows or clinics sponsored by private individuals, trade publications or other concerns. Such unofficial shows and clinics impose an unnecessary burden on the manufacturers and generally are of no benefit to any one except the sponsors, it was pointed out.

NEW WESTINGHOUSE OSCILLOGRAPH IS AUTOMATIC

For use in recording fluctuations of electric power or mechanical changes translatable into electrical ones, the Type PA automatic power oscillograph has been recently placed on the market by the Westinghouse Electric and Manufacturing Company, Newark, N. J.

Although designed primarily for recording automatically all chance disturbances on power systems, the PA oscillograph is adaptable also to staged tests of all kinds, where it is desirable to record electrical and mechanical phenomena.

Leaflet 20.521, published by the manufacturer, describes the instrument in detail.

SAFETY GLASS

is being

UNIVERSALLY SPECIFIED

•

The obvious and necessary protection afforded the motorist by Safety Glass has led to its universal use. Automobile manufacturers, bus builders, taxi manufacturers, builders of all passenger carrying vehicles — are specifying Libbey·Owens·Ford Safety Glass — because the public demands it.

Libbey·Owens·Ford Safety Glass is made by an exclusive process. The edges are sealed with a weatherproof compound to withstand heat, moisture, and other deteriorating elements. Thus clarity of vision is preserved. L·O·F Safety Glass will stimulate new car sales for you.

LIBBEY·OWENS·FORD GLASS COMPANY, TOLEDO, OHIO

Manufacturers of Highest Quality Flat Drawn Window Glass, Polished Plate Glass and Shatterproof Safety Glass; also distributors of Figured and Wire Glass manufactured by the Blue Ridge Glass Corporation of Kingsport, Tenn.

The following are users of L·O·F Safety Glass: Packard, Graham, Studebaker, Franklin, Reo, Willys, Willys-Knight and Ford. It is also used in Dietrich and Le Baron Custom Bodies, Reo Speed Wagons, Twin Coaches, Brill Trolley Buses, Cincinnati Trackless Trolley Coaches, Bender Bus Bodies, Hackney and Springfield School and Passenger Bus Bodies, White School Buses, Stinson Aircraft, Gar Wood Boats and Matthews Cruisers.

Listen to Floyd Gibbons every Sunday evening at 10:15 Eastern Daylight Time, over WJZ and associated NBC stations.

LIBBEY·OWENS·FORD SAFETY GLASS

INDIANA PLANTS STEP-UP OUTPUT

(Continued from Page 1)

merce that the Empire Tool Company is moving here from Dayton, O., and will occupy office space and one of the buildings formerly used by the Chard Lathe Company. The tool company manufactures dies, jigs, fixtures and special machinery for manufacturing plants and has been in business fourteen years. Arthur M. Ibaugh, president of the company, said that for the last six years most of the business has been done for Indiana firms and a desire to get closer to the seat of their business prompted the removal. The plant will be in operation here by July 20.

Retail business in Newcastle has picked up in pace with industrial activities.

S. P. A. ANNOUNCES NEW DEALERS AND DISTRIBUTORS

South Bend, Ind., July 7.—The Studebaker Corporation of America announces the new S. P. A., Pierce-Arrow truck and Studebaker distributor and dealer appointments, as follows:

R. I. Suresky, Goshen, N. Y.; Evenson Motor Company, Litchfield, Minn.; Urschel Murphy Motor Car Company, Toledo, O.; Ford's Garage, Cold Spring, N. Y.; Tractor and Machinery Company, Miles City, Mont.; George B. Wuestefeld Company, New Haven, Conn.; Morton & Bloom, Longmont, Col.; Lees Garage, Wilkes-Barre, Pa.; Morris Service Garage, Morristown, Minn.; S. E. Dingwell, Burchard, Neb.; George B. Wrought, Nicholson, Pa.; Lovelock Mercantile Company, Lovelock, Nev.; United Tire and Motor Company, Lewiston, Me.; Gateway City Garage, St. Ignace, Mich.

Studebaker Sales Company of Chicago, Chicago, Ill.; Kinnebrew Motor Company, Oklahoma City, Okla.; Cherokee Motor Company, Knoxville, Tenn.; James Motor Company, Rapid City, S. D.; Yarbrough Motor Company, Atlanta, Ga.; Interstate Motors, Inc., Billings, Mont.; Parker-Morelli Motor Company, Butte, Mont.; Canajoharie Motor Sales Company, Canajoharie, N. Y.

BOFFEY FORMERLY OF BOSCH AWARDED GOLD MEDAL

Springfield, Mass., July 7.—L. Frank Boffey, a former purchasing agent of the old Bosch Magneto company in Brightwood, now the United American Bosch corporation, was recently awarded the Johnson Shipman gold memorial medal by the National Association of Purchasing Agents for "diligent, faithful and unobtrusive service" in advancement of the purchasing profession. Mr. Boffey, now the editor and publisher of the Purchasing Agents' magazine, is widely known throughout the country in the purchasing field and especially in Western Massachusetts. This is the first year the medal award has been made.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Fan Belt Type	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-98	3916	127	Lyc	V	Dole	L	8	3 x4¾	268	*5.26	28.8	98@3400	*Alum	5	Pur	—	Sch	No
Austin	§1130	75	Own	F	——	L	4	2.2x3	45.6	5.1	7.8	13@3000	Alum	2	—	—	Til	No
Buick 8-50	3170	114	Own	V	Bish-Bab	O	8	2⅞x4¼	220.7	4.75	26.45	77@3200	CI	5	AC	AC	Mar	AC
Buick 8-60	3795	118	Own	V	Bish-Bab	O	8	3⅛x4⅝	272.6	4.63	30.02	90@3000	CI	5	AC	AC	Mar	AC
Buick 8-80	4255	124	Own	V	Bish-Bab	O	8	3⅛x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Buick 8-90	4340	132	Own	V	Bish-Bab	O	8	3⅛x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Cadillac V-8	4645	134	Own	V	Yes	LV	8	3⅜x4½	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	No
Cadillac V-12	5480	140–143	Own	V	Own	O	12	3½x4	368	5.5	46.9	135@3400	CI	4	AC	Gas	Own	No
Cadillac V-16	6100	148	Own	V	Yes	O	16	3 x4	452.0	5.50	57.5	165@3400	CI	5	AC	Gas	Own	No
Chevrolet	2685	109	Own	V	No	O	6	3⅛x3¾	194.0	5.00	26.3	50@2600	CI	3	—	AC	Car	AC
Chrysler 6	2850	*175⅞	Own	V	Yes	L	6	3⅛x4⅜	217.8	5.35	25.35	70@3200	*Alum	4	—	AC	Sch	Yes
Chrysler 8	3365	*186⅛	Own	V	Yes	L	8	3⅛x4¼	260.8	5.30	31.25	88@3400	*Alum	5	Yes	AC	Str	Yes
Chrysler 8 De L.	——	187⅛	Own	V	Yes	L	8	3¼x4¼	282.1	5.20	33.80	94@3400	*Alum	5	Yes	Yes	Str	Yes
Chrysler Imp. 8	4725	*211	Own	V	Yes	L	8	3½x5	384.8	5.01	39.2	125@3200	*Alum	9	Yes	AC	Str	Yes
Cord (Fr. Wh. D.)	4620	137½	Lyc	V	——	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	2695	*169⅜	Own	V	Yes	L	6	3¼x4⅛	205.3	5.20	25.35	67@3200	*Alum	4	—	AC	Car	Yes
De Soto Eight	3025	*177	Own	V	Yes	L	8	2⅞x4¼	220.7	5.40	26.45	77@3400	*Alum	5	—	AC	Str	Yes
De Vaux 6-75	2810	113	Hall	V	·ole	L	6	3⅜x5	214.7	5.41	27.34	70@3400	Alum	4	AC	Ste	Til	AC
Dodge Six	2820	114¼	Own	V	Yes	L	6	3⅛x4¼	211.5	5.20	25.35	68@3200	*Alum	4	No	AC	Car	AC
Dodge Eight	3174	118¼	Own	V	Yes	L	8	3 x4¼	240.3	5.40	28.80	84@3400	*Alum	5	Pur	AC	Str	AC
Durant 610	2780	112	Con	V	Bish-Bab	L	4	3⅞x4¼	200	4.80	24.0	50@2800	*Alum	3	AC	AC	Til	Til
Durant 612	2820	112	Con	V	Bish-Bab	L	6	3⅛x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 614	3010	112	Con	V	Bish-Bab	L	6	3⅛x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 619	2710	109	Con	V	Bish-Bab	L	6	3⅛x4	199.0	5.32	25.4	71@3300	*Alum	4	AC	AC	Til	AC
Essex Super Six	2925	**113	Own	V	——	L	6	2⅞x4½	175.3	5.80	19.8	60@3300	Alum	3	—	Ste	Mar	AC
Ford A	2375	103½	Own	V	——	L	4	3⅛x4¼	200.5	4.22	24.03	40@2200	Alum	3	—	—	Zen	—
Fr'klin S 15 Trans.	3930	125	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 Trans.	4130	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 De L	4220	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Graham Pros. 6	3100	113	Own	V	Yes	L	6	3⅛x4½	207	5.45	23.4	70@3200	*Alum	7	—	AC	Sch	Yes
Graham Std. 6	3265	115	Own	V	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 6	3330	115	Own	V	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 8	3560	120	Own	V	Yes	L	8	3⅛x4	245	5.45	31.25	85@3400	*Alum	5	AC	AC	DL	Yes
Graham Cust. 8	4100	134	Own	V	Yes	L	8	3¼x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	Yes
Hudson Greater 8	3325	119–126	Own	V	——	L	8	2⅞x4½	233.7	5.80	26.4	87@3600	Alum	5	—	Ste	Mar	AC
Hupmobile Cen. 6	2985	114	Own	V	Yes	L	6	3¼x4¼	211.6	5.10	25.35	70@3200	Alum	4	AC	Ste	Str	Yes
Hupmobile Cen. 8	3275	118	Own	V	Pines	L	8	2⅞x4⅝	240.2	5.20	26.45	90@3200	Alum	5	Pur	Ste	Str	Yes
Hupmobile C	3730	121	Own	V	Pines	L	8	3 x4¾	268.6	5.20	28.8	100@3200	CI	5	Pur	Ste	Str	Yes
Hupmobile H & U	**	125–137	Own	V	Pines	L	8	3½x4¾	365.6	5.20	39.2	133@3400	Alum	5	Pur	Ste	Str	AM
La Salle V-8	4635	134	Own	V	Yes	LV	8	3⅜x4½	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	—
Lincoln	5300	145	Own	V	Ful	L	8	3½x5	384	5.23	39.2	120@2900	Alum	5	Pur	Ste	Str	Un
Marmon 70	2823	112¾	Own	V	Pines	L	8	2⅞x4¼	211.2	5.50	25.4	84@3400	Alum	5	AC	AC	Str	AC
Marmon 88	4375	130–136	Own	V	Pines	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	AC	AC	Str	AC
Marmon 16	5360	145	Own	V	Pines	O	16	3⅛x4	490.8	6.00	62.5	200@3400	Alum	5	AC	AC	Str	AC
Nash 960	2800	114¼	Own	V	Bish-Bab	L	6	3⅛x4⅜	201.3	5.00	23.4	65@3200	*Alum	7	AC	AC	Car	AC
Nash 970	3000	116¼	Own	V	Bish-Bab	L	8	2⅞x4⅜	227.2	5.00	26.4	78@3300	*Alum	9	AC	AC	Str	AC
Nash 980	3360	121	Own	V	Bish-Bab	O	8	3 x4¼	240	5.25	28.8	94@3400	*Alum	9	AC	AC	Str	AC
Nash 990	4000	124–133	Own	V	Bish-Bab	O	8	3¼x4½	298.6	5.25	33.8	115@3600	*Alum	9	AC	AC	Str	AC
Oakland V-8	3260	117	Own	V	Yes	H	8	3⅛x3⅜	251.0	5.00	37.8	85@3400	S St	3	—	AC	Mar	AC
Oldsmobile	2935	113½	Own	V	——	L	6	3⅜x4⅛	197.5	5.06	24.4	65@3350	CI	4	AC	AC	Str	AC
Packard 901-902	4570	129½-136½	Own	V	——	L	8	3⅜x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard 903-904	5045	142⅛-147⅛	Own	V	——	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Peerless St. 8	3642	118	Con	V	Bish-Bab	L	8	2⅞x4¾	246.0	5.00	26.45	90@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Master 8	4521	125	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless De L.	4521	125	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Custom 8	4766	138	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	120@3200	*Alum	5	Pur	AC	Sch	AC
Pierce-Arrow 43	4304	134–137	Own	V	Yes	L	8	3½x4¾	366	5.07	39.2	125@3000	*Alum	9	Han	AC	Str	Un
Pierce-Arrow 41-42	4831	142–147	Own	V	Yes	L	8	3½x5	385	5.07	39.2	132@3000	*Alum	9	Han	AC	Str	Han
Plymouth	2710	*170	Own	V	——	L	4	3⅜x4¾	196.1	4.90	21.03	56@2800	*Alum	3	—	AC	Car	Yes
Pontiac	2845	112	Own	V	Yes	L	6	3⅛x3⅞	200.0	4.90	26.3	60@3000	S St	3	—	AC	Mar	AC
Reo Royale 8-35	4650	135	Own	V	Pines	L	8	3¾x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale 8-31	4375	131	Own	V	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-21	3610	121	Own	V	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	Alum	5	Han	—	Sch	Un
Reo 6-21	3525	121	Own	V	Yes	L	6	3⅜x5	268.3	5.30	27.3	85@3200	Alum	7	Han	—	Sch	Un
Reo Fly. Cloud 6-25	3950	125	Own	V	Pines	L	6	3⅜x5	268.0	5.30	27.34	85@3200	Alum	7	Han	V-S	Sch	Un
Studebaker Six	2920	114	Own	V	Dole	L	6	3¼x4⅛	205.3	5.20	25.4	70@3200	CI	4	Pur	Ste	Str	No
Studebaker Dict. 8	3095	114	Own	V	Dole	L	8	3⅛x3¾	221.0	5.00	30.0	81@3200	Alum	9	Pur	Ste	Str	AM
Studebaker Com. 8	3520	124	Own	V	Dole	L	8	3⅛x4¼	250.4	5.20	30.0	101@3200	Alum	9	Pur	Ste	Str	Un
Studebak'r Pres. 80	4250	130	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Studebak'r Pres. 90	*4360	136	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	—	Str	AM
Stutz LA	4320	127½	Own	—	Bish-Bab	O	6	3⅜x4½	241.5	5.10	27.3	85@3150	*Alum	7	Wal	AC	Zen	Un
Stutz MA	4918	134½	Own	—	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz MB	4863	145	Own	—	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz DV 32	5240	134½	Own			O	8	3⅜x4½	322	5.10	36.4	155@3900	Alum	9	Wal	Ste	Sch	AM
Willys 6-97-98 D	*	110–113	Own	V	Var	L	6	3¼x3⅞	193	5.26	25.3	65@3400	CI	4	—	AC	Til	Til
Willys 8-80 D	3131	121	Own	V	Var	L	8	3⅛x4	245.4	5.26	31.25	80@3200	CI	5	—	AC	Til	Til
Willys-Knt. 66-D	3400	121	Own	V	Var	K	6	3⅜x4¾	255	5.26	27.3	87@3200	*Alum	7	Ski	Til	Til	Til

Welding Stainless Steel

(Continued from Page 7)

men can weld more rapidly than others and, therefore, can use a greater amount of heat. After a little experience each operator will find the best voltage and amperage setting for his particular machine on various gauges.

A welding outfit should be provided which has very flexible controls because variations in voltage and amperage are rather critical on this alloy.

A short arc should be used partly because it will give a more uniform penetration and partly because with a short arc there is less chance of the molten metal becoming oxidized and thus producing porous welds.

Backing up is to be recommended where possible and in each case the operator should be provided with samples on which to experiment for power adjustment and arc length before he starts on any job.

The scale produced on these welds is usually heavy and hard, and it would be found very helpful if the scale were ground off the bead left by one rod before starting the continuation of the weld with the next rod.

There are certain general principles concerning all types of welding on Allegheny matal.

In the first place, when this metal is heated to any temperature in excess of about 450 degrees Fahrenheit, it will discolor or oxidize on the surface. This oxidization must be entirely removed, as it will rust rapidly, and the rust will spoil the appearance of what might be otherwise a very good piece of work. Oxidization can be removed by grinding, or can be taken off by the application of a mixture of one part of commercial nitric acid to one part of commercial hydrochloric acid. This acid mixture is extremely powerful and should only be left on the metal for a sufficient length of time (probably a few minutes) to remove the discoloration. It is absolutely essential that every trace of the acid be removed from the metal first by washing with water and then following this by a thorough washing with soap and water in which has been dissolved some sal soda, ammonia or other alkali.

If Allegheny metal is to be used to resist severe corrosive attack, then it is essential that it should have the right metallurgical structure. This term means that the carbon should be in solution in the iron and not in the form of carbides, which are chemical combinations of iron and carbon.

It is unfortunately true that metals of the 18-8 type, if heated to temperatures within the range of 950 degrees to 1550 degrees Fahrenheit, will during certain periods of time, and depending on the temperature, undergo a structural change in which some of the carbon will be precipitated from solution and be converted into an iron carbide, or perhaps an iron chromium carbide. These carbides accumulate along the grain boundaries of the metal, and if the metal is then subjected to heavy corrosive attack such as nitric acid, hot salt water, copper sulphate solution etc., an electrolytic effect may be developed which will rapidly corode and will destroy the metal.

It is obvious that in welding the metal is at some point heated to these temperatures and, therefore, there is always an area adjacent to the weld which will have a lower corrosion resistance than the parent metal. The carbide of precipitation does not occur instantaneously, but requires a certain amount of time to develop. It is obvious that because a No. 24 gauge sheet will cool more rapidly than a ¼ inch plate, precipitation is less likely to occur in light gauge work than in heavier thicknesses. It is also true that experience has indicated that in applications such as soda fountains, restaurant equipment and so forth, corrosion is of such a mild type that carbide precipitation need not be considered. On the other hand, the calcium bi-sulphide solution used in the sulphite paper industry is so highly corrosive that all welds must be treated to eliminate carbide precipitation. Between these two extremes each application must be considered from the standpoint of the degree of corrosion and also the probability of carbide precipitation which in turn is governed by the technique of welding and also the thickness of the parts which are welded.

It should be noted that where carbide precipitation has occurred it can be eliminated by heating the metal to a temperature of about 1,950 deg. Fah., which heating

(Continued on Page 9)

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmis'n and Speeds	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Spring Rear	Springs Shackles	Chassis Lubric.	Tires
Auburn 8-98	Chain	Del-R	°Del-R	Long	D-SM 3†	Un P	Col ½	*4.45	S D	Ross	S 56¾	Own	Bijur	17x5.50
Austin	Gear	Aut-L	°Aut-L	Rock	War-G 3	Spic	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 8-50	Tex	Del-R	Del-R	Own	Mun 3	Own	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Al-Z	18x5.25
Buick 8-60	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.45	M	Sag	S 55¼	Own	Alem	19x5.50
Buick 8-80	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Buick 8-90	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Cadillac V-8	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Al-Z	19x6.50
Cadillac V-12	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	——	Own-M	Sag	S 58	Own	Alem	19x7.00
Cadillac V-16	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.39	Own	Sag	S 60	Own	Alem	19x7.00
Chevrolet	Var	Del-R	*Del-R	Own	Own 3	Own	Own	4.10	M	Sag	S 54	——	Alem	19x4.75
Chrysler 6	Morse	Del-R	Del-R	Own	Own 3	Un P	Own ½	4.60	H	War	S 53⅛	Tryon	Al-Z	19x5.25
Chrysler 8	Morse	Del-R	Del-R	—	Own 4	—	Own ½	4.10	H	War	S 54⅝	——	Al-Z	17x7.50
Chrysler 8 De L.	Morse	Del-R	Del-R	—	Own 4	—	Own ½	4.30	H	——	S 54⅝	——	Al-Z	17x6.50
Chrysler Imperial 8	Morse	Del-R	Del-R	—	Own 4	—	Own ½	3.81	H	Ross	S 57½	——	Al-Z	18x7.00
Cord (Fr. Wh. Dr.)	Link	Del-R	°Del-R	Long	Detr 3	UnP&MM	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Var	Del-R	Del-R	—	Own 3	—	Own ½	4.33	H	Own	S 53⅛	——	Al-Z	19x5.00
De Soto Eight	Var	Del-R	Del-R	—	Own 3	—	Own ½	4.60	H	Own	S 54⅝	Rub B	Al-Z	19x5.25
De Vaux 6-75	Morse	Aut-L	°Aut-L	Borg	NP 3	Spic	NP ½	4.40	S D	NP	S 54¼	Tryon	Al-Z	19x5.00
Dodge Six	Morse	Del-R	Del-R	Borg	Own 3	Spic	Own ½	4.60	H	War	S 55¼	Tryon	Al-Z	19x5.00
Dodge Eight	Morse	Del-R	Del-R	Borg	Own 3	Spic	Own ½	4.60	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Durant 610	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	3.96	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 612	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	4.45	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 614	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	4.45	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 619	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	3.90	S D	Own	S 54	Tryon	Al-Z	19x4.75
Essex Super Six	Morse	Aut-L	°Aut-L	Own	Own 3	Spic	Own ½	5.41	Bendix	Gem	S 54⅛	Own	Alem	19x5.00
Ford A	Var	Own	°Own	Own	Own 3	Own	Own ¾	3.78	M	Gem	S Tr39	Own	Al-Z	19x4.75
Franklin S 15 Trans.	Chain	Del-R	°Del-R	Br-L	**	MM	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 Trans.	Chain	Del-R	°Del-R	Br-L	**	MM	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 De L	Chain	Del-R	°Del-R	Br-L	War-G	Spic	Own ½	‡4.73	H	Gem	El 42	None	Al-Z	19x6.50
Graham Pros. 6	Link	Del-R	°Del-R	Long	— 3	—	——	4.45	H	Ross	S 54	ERS	Al-Z	19x5.00
Graham Std. 6	Link	Del-R	°Del-R	Long	— 3	—	——	4.30	H	Ross	S 54	ERS	Al-Z	5.50x18
Graham Spl. 6	Link	Del-R	°Del-R	Long	— 4	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Spl. 8	Link	Del-R	°Del-R	Long	— 4	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Cust. 8	Link	Del-R	°Del-R	Long	— 4	—	——	4.09	H	Ross	S 56	ERS	Al-Z	6.50x18
Hudson Greater 8	Morse	Aut-L	°Aut-L	Own	Own 3	Spic	Own ½	4.75	Bendix	Gem	S 54⅛	Own	Alem	18x5.50
Hupmobile Cen 6	Chain	Aut-L	°Aut-L	Borg	War-G 3*	MM	Sal ½	4.70	S D	Ross	S 53	Tryon	Al-Z	19x5.50
Hupmobile Cen 8	Morse	Aut-L	°Aut-L	Borg	War-G 3*	Un P	Sal	4.55	S D	Ross	S 52¾	Rub B	Al-Z	19x5.50
Hupmobile C	Morse	Aut-L	°Aut-L	Long	War-G 3*	Un P	Own ½	4.55	S D	Ross	S 54	Own	Alem	19x6.00
Hupmobile H and U	Morse	Aut-L	°Aut-L	Long	War-G 3*	Up P	Own ½	4.07	S D	Ross	S 57	Own	Alem	19x6.50
La Salle V-8	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Alem	19x6.50
Lincoln	——	Aut-L	°Aut-L	Long	Own 3*	Spic	Tim F	4.58	Bendix	Own	S 62	Own	Alem	7.00x19
Marmon Eight-70	Diam	Del-R	°Del-R	Rock	War-G 3	Spic	Sal ½	4.70	Bendix	Ross	S 54⅛	Tryon	Al-Z	29x5.50
Marmon 88	Diam	Del-R	°Del-R	Rus	Detr 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Al-Z	19x6.50
Marmon 16	Diam	Del-R	Del-R	Rus	Mun	Spic	Sal ½	3.78	Bendix	Ross	S 60	Rub B	Al-Z	18x7.00
Nash 960	Cel	Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.00
Nash 970	Diam	Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.25
Nash 980	Diam	*Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.46	M	Gem	S 55	——	Bijur	18x6.00
Nash 990	Diam	*Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.50	M	Gem	S 57⅛	——	Bijur	19x6.50
Oakland V-8	Morse	Del-R	Del-R	Own	M-SM 3	MM	Own ½	3.90	M	Sag	S 54½	Inlox	Al-Z	28x5.50
Oldsmobile	Chain	Del-R	Del-R	Borg	M-SM 3	Un-P	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Alem	28x5.25
Packard 901-902	Morse	—	——	——	O-SM 4	—	Own ½	—	M	Own	S 60½	——	Bijur	6.50x19
Packard 903-904	Morse	—	——	——	O-SM 4	—	Own ½	—	M	Own	S 60½	——	Bijur	7.00x19
Peerless St. 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.70	Bendix	Ross	S 56⅞	Rub B	Alem	29x5.50
Peerless Master 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless De L.	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless Custom 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.50
Pierce-Arrow 43	Gear	Del-R	Del-R	Long	Own 3	Spic	Own ½	4.08	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Pierce-Arrow 41-42	Chain	Del-R	Del-R	Long	Own 3	Spic	Own ½	*	Bendix	Ross	S 61	Faf	Al-Z	18x7.00
Plymouth	Var	Del-R	Del-R	Rock	Own 3	Own	Own ½	4.33	H	War	S 53⅜	Tryon	Al-Z	19x4.75
Pontiac	Morse	Del-R	Del-R	Own	Own 3	MM	Own ½	3.90	M	Sag	S 54	Inlox	Al-Z	29x5.00
Reo Royale 8-35	Morse	Del-R	Del-R	Long	Own 3	Un P	Own ½	4.07	H	Ross	S 57½	Own	Far	6.50x18
Reo Royale 8-31	Morse	Del-R	Del-R	Long	Own 3	Un P	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	6.50x18
Reo 8-21	Link	Del-R	Del-R	Long	Own 3	Un-P	Own	4.42	H	Ross	S 56⅛	Tryon	Al-Z	17x6.00
Reo 6-21	Morse	Del-R	Del-R	Long	Own 3	Un-P	Own	4.07	H	Ross	S 56⅛	Tryon	Al-Z	17x6.00
Reo Fly. Cloud 6-25	Morse	Del-R	*Del-R	Long	Own 3	Un-P	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Studebaker Six	Chain	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Dict. 8	Var G	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Com. 8	Var G	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 56	Faf	Al-Z	19x6.00
Studebaker Pres. 80	Var G	Del-R	Del-R	Long	Own 3*	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Studebaker Pres. 90	Var G	Del-R	Del-R	Long	Own 3*	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Stutz LA	——	Del-R	Del-R	Borg	Detr 4	Un P	Sal ½	4.75	H	Gem	S 60	Own	Bijur	19x6.00
Stutz MA	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x6.50
Stutz MB	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x7.00
Stutz DV 32	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	18x7.00
Willys 6-97-98 D	Chain	Aut-L	*Aut-L	Borg	Own 3	Spic	Own ½	4.60	Bendix	Own	*S 49¾	Tryon	Alem	19x5.00
Willys 8-80 D	Chain	Aut-L	*Aut-L	Borg	Own 3	Spic	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys-Knight 66 D	Chain	Aut-L	*Aut-L	Rock	Own 3	Spic	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	18x6.00

KEY TO ABBREVIATIONS

Weight—‡Austin standard 2 passenger coupe. **Hupmobile model H weighs 4,095 pounds, and model U 4,360 pounds. *Studebaker, 7 pass. sedan. *Willys 6-97D weighs 2,670 and the 98 D weighs 2,706 pounds.

Wheel Base—*Over all length of chassis instead of wheel base, which manufacturers refuse to give. **Essex, seven-passenger sedan available on 119-inch wheel base.

Engine Make—Con, Continental; Lyc, Lycoming, Hall, De Vaux-Hall Motors Corp.

Fan Belt Type—V, V-type; F, flat.

Thermostat—Bish-Bab, Bishop & Babcock; Dole, Dole Valve Co., Chicago, Ill.; Ful, Fulton Co.; Pines, Pines Winterfront; Var, various makes.

Valve Arrangement—L, L head; H, horizontal; O, overhead; K, sleeve valve; LV, V-type L head.

*Air cooled. †Thermo syphon water circulation.

Compression Ratio—*Optional on the Auburn.

Piston Material—*Alum, aluminum with invar struts; Alum, aluminum alloy; CI, cast iron; S St, semi-steel.

Oil Purifier—Pur, Purolator; Wal, Wall; Han, Handy; AC, AC Spark Plug Company; Ste, Stewart-Warner; Ski, Skinner.

Fuel Cleaner—AC, AC Spark Plug Co.; Gas, Gascolator; Ste, Stewart-Warner; Til, Tillotson; V-S, Van Sicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL Detroit Lubricator; Til, Tillotson.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Han, Handy; Un, United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; Del-R, Delco-Remy; N. E., North East; *Nash-Indicates twin ignition.

*Bendix starter used.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co.

Transmission—War G., Warner Gear Company; Detr, Detroit Gear; Mun, Muncie Gear; WC, Warner Corporation; D-SM—Detroit Synchro-Mesh; O-SM—Own, Synchro-Mesh; M-SM—Muncie. Synchro-Mesh. N.P.—New Process Gear Corp.

**Franklin Transcontinent models are equipped with both Warner and Detroit 3 or 4 speed gear sets according to body type.

*Free Wheeling.

†Free wheeling on Auburn De Luxe models only.

Universals—Un P, Detroit Universal Products Company; Spic, Spicer Manufacturing Corporation; MM, Mechanics Universal Joint Company.

Rear Axle—Col, Columbia; Sal, Salisbury; Tim, Timken; N.P., New Process Gear Corp.; ½-Semi-floating; ¾-¾ floating; F-Full floating.

Ratio—Optional on the Auburn. *On Pierce Arrow 43, 137 in. W. B. rear axle ratio is 4.42. On model 41 rear axle ratio is 4.42. On model 42 ratio is 4.23.

†The axle ratio varies with body types on Franklin models.

Brakes—H, hydraulic; M, mechanical; SD, steeldraulic; Bendix, Bendix Brake Corp.

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company; War, Warner; N.P., New Process Gear Corp.

Rear Springs—S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse. *Rear spring length on Willys, 6-98D is 51 in.

Spring Shackles—Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; ERS, Eaton Rubber Bushings; Inlox—Inland Mfg. Co.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval.

Stainless Steel Welding

(Continued from Page 8)

should be followed by a cooling sufficiently rapid to prevent further precipitation. The method of cooling will, of course, depend on the thickness of the section, and the details of such operations should be discussed with the manufacturers of the metal.

Metals of the 18-8 type will expand when heated about 50 per cent. more than steel, and the heat conductivity is only about one-half that of steel. These two factors tend to make the metal warp more than steel, and this point must be taken into careful consideration in all welding jobs. Jigs must be used to hold warpage within practical limits.

Welds in Alleghany metal are extremely tough, and any welds made on metal about No. 10 gauge or lighter should stand bending flat on themselves without fracturing.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

NOTICE

Please see the fifth column to the left of this advertisement giving steering gear information. Notice the outstanding Ross predominance. The actual figures are:

ROSS

34

FIRST Competitor

13

SECOND Competitor

12

THIRD Competitor

5

Build Their Own

10

ROSS CAM AND LEVER steering gears predominate not only in passenger car field, but in truck and bus fields as well.

ROSS GEAR & TOOL CO.
Lafayette, Indiana

ROSS
Cam & Lever
Steering
There is only one CAM & LEVER Steering Gear

Insuring Wholesalers' Profits With Trucks

This report on economical truck operation in the wholesale field was prepared by the General Motors Truck Company, Pontiac, Mich., and is appearing in serial form in Automotive Daily News. Copies of this report in pamphlet form are now available at all General Motors Truck Company dealer and distributorships.

DURING the investigation preceding the writing of this report, leading wholesalers time and again pointed to the importance of their truck operation in the whole scheme of moving goods. The truck is the only form of transportation that the wholesaler can own, control, and direct to meet the demand for more rapid and effective movement of goods. Indeed, it is largely because of the increase in truck transportation that retailers and consumers both have come to expect and demand the rapid, frequent service which is common to present-day deliveries of all types of goods.

To a great many wholesalers, however, the truck is simply a necessary evil—an expensive and sometimes troublesome piece of equipment made necessary by present-day competitive emphasis on service. That attitude is scarcely justified, as we shall see later in this report. Indeed, the wholesaler who uses his trucks as a helpful, practical tool will find that his efforts toward better planned and managed truck operation are highly profitable.

The facts revealed by this investigation indicate clearly that effort spent in planning better truck operation will yield more profitable returns for the average wholesaler than an equal amount of effort directed toward almost any other phase of his business.

Truck Operation an Important Expense Item

Just how important it is for the wholesaler to concentrate attention on the operation of his trucks is revealed from one angle by a study of his expense of doing business. The average wholesaler of nonperishables operates on a gross margin of from 15 per cent. to 25 per cent. of his net sales. Out of this margin must come all the expenses of doing business—rent, heat, light, power, delivery, salaries and wages—and the wholesaler's profit.

Careful analysis of these expenses for a number of typical wholesalers shows that truck and delivery expense is from 6 per cent. to 14 per cent. of the total of these expenses. And the interesting thing to note is that in no case was the wholesaler's profit greater or even equal to the cost of his truck operation.

The profit any business returns is dependent on the degree to which each of these expenses of doing business is controlled.

And in almost every wholesale operation observed, careful analysis showed that one of the most promising opportunities for increasing profits and lowering expense was in eliminating losses in truck operation.

(TO BE CONTINUED)

ADVANTAGES OF TRUCK TRANSPORTATION

Merchandise shipped by truck usually demands no special wrapping or crating for shipment.

Within certain distance limits, transportation by truck is the fastest form of transportation.

The small lot shipment is most economically handled when shipped by truck.

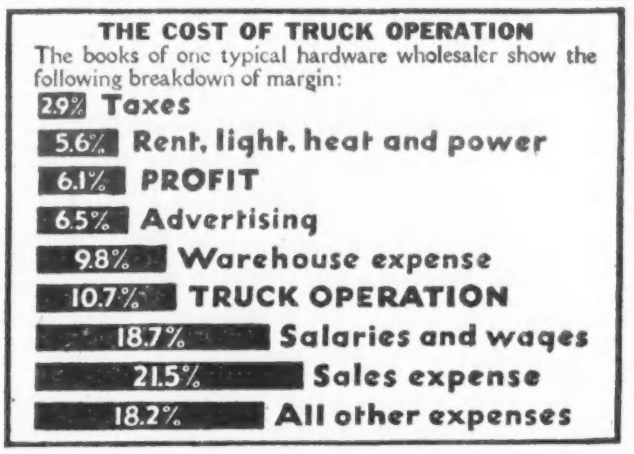
Trucks are the only transportation the wholesaler can own and control.

Truck terminals are not fixed; the truck can deliver anywhere.

Within broad limits, the truck is the most economical transportation.

THE COST OF TRUCK OPERATION

The books of one typical hardware wholesaler show the following breakdown of margin:



WORCESTER TO HAVE TEMPORARY BUS TERMINAL

Worcester, Mass., July 7.—The establishment of a temporary bus terminal of painted lines in the center of Salem square has been tentatively approved by the Aldermanic traffic committee. City Clerk Malcolm C. Midgley also explained his plan for an enclosed loading platform to bring buses into the center of the square and away from the curb.

The committee voted to confer with Chief of Police Foley to determine the practicability of painting lines on the street surface of the square near the Franklin street end, to be designated as loading area for all buses operating in or through Worcester.

Opposition to the spending of city funds for establishing a bus terminal to be used by private companies was voiced by Mayor O'Hara.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

Final Revision, Complete New Commercial Car Registration Statistics, May, '31

Returns for today: Louisiana and New York.

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Some of this data has been published previously, but it is given here complete for the convenience of our subscribers. Readers desiring county, city or town lists, or lists in any given section, may obtain these by addressing any of these three companies.

Commercial car registrations do not include busses. **Comparative figures for May, 1930, will be found on Page 11** **In this table 48 states and the District of Columbia.**

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Essex	FWD	Fargo	Federal	Ford	G. M. C.	International	La France-Republic	Mack	Paige	Relay	Reo	Rugby	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Alabama			143		2					163	2	8		1	2	1					1		3			3	329	Alabama
Arizona		1	48		6					91	3	8					2				2			2			163	Arizona
Arkansas			63		2			1		100	2	13					1						5	1		2	190	Arkansas
California	7	6	414	2	93	1			5	1086	34	96	3	22			37	4	11	4	16		18	7	1	68	1935	California
Colorado			83		18				2	217	3	18		1			2				8		4	6		4	366	Colorado
Conn.		2	158	4	40				10	281	9	30	2	18			3		4	8	17		8	5	1	15	615	Conn.
Delaware	4		41		2		1		1	41	1	12										1				3	107	Delaware
Florida			122		7				4	188	2	27				1	6					2	2	1		2	364	Florida
Georgia			139		9				1	241	1	22		3		1	1				1		7	2			428	Georgia
Idaho			55		16					89	3	9									4			3			179	Idaho
Illinois	3	5	429	36	71			1	3	641	18	137		13		3	6		5	1	26			14	1	39	1452	Illinois
Indiana	1	13	330	8	57					382	26	94		2			6			4	31	1		16	4	5	980	Indiana
Iowa			323	9	41				1	359	4	112		1			11				19	1	4	18		3	906	Iowa
Kansas		4	196	2	19			1		166	9	55			1		2			4	9		1	10		1	480	Kansas
Kentucky		3	113	3	14				1	147	5	43		3			6			1	7	1	2	8		2	359	Kentucky
Louisiana			158	2	14					230	1	45									1		2	3		2	458	Louisiana
Maine	1		253	3	49				3	404	6	28		7			5		1		14		1	14	1	1	791	Maine
Maryland	9	5	144	6	18			1	2	224	24	46		14			6		1	3	7		3	4		1	518	Maryland
Mass.	34	12	288	9	78	2	1		20	828	49	81	5	24	2		22		25	2	20		18	5		11	1536	Mass.
Michigan	3		330	5	49			1	19	765	23	61	6	6	1		17	1		2	8	2	1	10		14	1324	Michigan
Minn.			328	15	30				7	413	10	128	1	4	1		14	2			20		6	25		9	1013	Minn.
Miss.			74		4					71		8	1			1								3			162	Miss.
Missouri		7	329	10	25				9	366	10	42	1		1		2	1	1		9	5	5	11	1	12	847	Missouri
Montana			32		3					76	6	30		1			5		1		1			2		2	159	Montana
Nebraska			148	3	12			1		228	4	54		2							7		1	9		9	478	Nebraska
Nevada			26		2					41		3		2					1		2		2			4	83	Nevada
N. Hamp.	1	1	72	1	11					161	7	10		1			5			1	6		2	8			287	N. Hamp.
N. Jersey	14	6	470	16	108				13	675	40	74	2	31	2	1	6		9	3	19		27	12	3	50	1581	N. Jersey
N. Mexico			48	1	4		1	1		91	1	10					1					1	3				162	N. Mexico
New York	36	75	870	54	179		3		16	1824	80	261	3	117	2	9	59	1	12	90	29		51	52	2	81	3906	New York
Nor. Car.	1		245		24					267	5	36		2		1	4				1			2		10	598	North Car.
Nor. Dak.		1	73		16					82	5	76					1				5		1	3			263	Nor. Dak.
Ohio	4	7	424	6	90			1	7	707	29	106	1	10		4	14	5	2	13	31		18	35		61	1575	Ohio
Oklahoma		1	164	1	19					155	5	9	1	1			1				1		1	2		3	364	Oklahoma
Oregon			110		9				4	210	11	24		2			3		6		6		2			12	399	Oregon
Penna.	24	22	610	15	159	3		3	13	1043	35	132	9	29	2	8	15	2	14	35	34	2	21	38	4	45	2317	Penna.
Rho. Isl.	2		46	6	26			1	3	119	4	10		7			4		2	1					1	2	234	Rh. Island
So. Caro.			125		3					151	1	9	1	1			1				3					2	297	S. Carolina
S. Dakota			64	7	11					81		46			1		2	1			6						219	S. Dakota
Tenn.			109		19				9	116	2	20	1			4			2		2		7	2		3	296	Tennessee
Texas	1	10	649	10	22		1		3	705	9	154		4			11				7		5	9		11	1611	Texas
Utah			55		4	1				74	4	9			1		4				1			1			154	Utah
Vermont		1	47		10					99		18		2			5				3			8			193	Vermont
Virginia	5	3	325	2	27				6	338	14	44	2	4		2	3			1	3		6	5		5	795	Virginia
Wash'ton			96		12	1			1	209	7	22		1			2	2	1		12		7	3		23	399	Wash'ton
W. Va.	1	3	150	1	25					155	3	25		2		1	5			1	5		5	8		1	391	W. Va.
Wiscon.			319	17	19		4		2	402	17	59		1	2		4	1	3	1	18		2	19		10	900	Wisconsin
Wyoming			41		10			1		45		9					1				4						111	Wyoming
D. of Col.	3		46	6	3	2			1	124	6	9		7		1	1						2			4	215	Dist. of C.
Totals	154	188	9925	260	1491	10	11	13	166	15671	540	2382	39	346	18	38	306	20	101	175	426	16	253	386	19	535	33489	Totals

May Chevrolet Car Sales Top 1930 in Many States

NEW YORK, July 7.—Out of thirty-one states that have reported new car registrations for May, eleven showed gains in sales of new Chevrolet passenger units in that month over the corresponding period of 1930. A gain over last year also was reported by the District of Columbia.

In eight states and the District of Columbia, among those reporting, Chevrolet sales for the first five months of this year were greater than in the corresponding period of last year.

In the entire group of states, however, Chevrolet registrations were slightly under a year ago and also below the preceding month. The total for the thirty-one states and the District of Columbia was 44,263 for May, as against 44,518 in April, off less than 1 per cent., and comparing with 46,680 in May, 1930, a decline of 5 per cent.

For the first five months of the year, Chevrolet retail sales in these states aggregated 163,482, as compared with 182,458 in the corresponding period of last year, a decline of 10 per cent.

The eleven states in which sales in May topped a year ago were Connecticut, Florida, Georgia, Maryland, Massachusetts, Nevada, New Hampshire, North Carolina, Oregon, Pennsylvania and Rhode Island.

The eight states in which registrations for the five months exceeded those of last year were Connecticut, Florida, Massachusetts, Nevada, New Hampshire, North Carolina, Oregon and Pennsylvania.

In sixteen states, Chevrolet registrations were greater than in April. These were Arizona, Arkansas, Idaho, Iowa, Maryland, Minnesota, Missouri, Nebraska, Nevada, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Virginia and Wisconsin.

The following table compares May Chevrolet sales in the reporting states for May, with those of a year ago and with April, 1931:

	May 1931	May 1930	April 1931
Alab.....a	869	907	915
Arizona	320	346	162
Arkansas	371	671	340
Connecticut	1,147	1,130	1,214
Delaware	215	225	236
Florida	870	696	939
Georgia	983	931	1,054
Idaho	313	455	210
Illinois	4,185	4,749	5,179
Iowa	2,348	3,183	1,872
Maryland	1,382	1,294	1,133
Massachusetts	3,283	2,528	5,311
Minnesota	2,496	2,832	2,129
Missouri	2,170	2,589	1,094
Montana	332	399	366
Nebraska	1,246	1,339	1,203
Nevada	81	56	77
New Hampshire	429	424	576
North Carolina	1,207	792	1,415
North Dakota	424	651	464
Ohio	4,516	4,682	5,095
Oregon	632	582	603
Pennsylvania	6,071	5,389	5,141
Rhode Island	551	448	505
South Carolina	699	743	642
South Dakota	401	586	344
Utah	234	316	283
Virginia	1,648	1,711	1,365
Washington	659	792	868
West Virginia	772	1,215	830
Wisconsin	2,502	3,533	1,796
Dist. of Columbia	907	486	1,157
Totals	44,263	46,680	44,518

Here are the comparative figures for the first five months of this year and last:

	1931	1930
Alabama	3,086	4,251
Arizona	852	1,294
Arkansas	1,805	3,071
Connecticut	4,003	3,888
Delaware	785	862
Georgia	3,683	3,931
Florida	4,464	3,438
Idaho	1,096	1,699
Illinois	11,887	13,504
Iowa	9,050	12,826
Maryland	5,347	5,578
Massachusetts	10,591	9,589
Minnesota	8,487	8,641
Missouri	12,565	16,943
Montana	1,618	1,641
Nebraska	5,556	6,680
Nevada	316	263
New Hampshire	1,369	1,279
North Carolina	4,315	3,874
North Dakota	1,838	2,119
Ohio	16,855	19,208
Oregon	2,517	1,924
Pennsylvania	20,323	19,910
Rhode Island	1,611	1,651
South Carolina	2,857	3,049
South Dakota	2,013	2,799
Utah	1,099	1,339
Virginia	6,172	6,569
Washington	2,984	4,067
West Virginia	2,721	3,925
Wisconsin	8,348	10,692
Dist. of Columbia	3,268	1,954
Totals	163,482	182,458

FORD DEALER EXPANDS

Manson, Ia., July 7.—The Olsen Auto Company, Ford dealer here, has secured the dealership for Rockwell City and will open a place of business there. Main offices, however, will be maintained here.

Attracts Many Buyers

USING small display space two columns by four inches, the Foley Chevrolet Company of Newark, N. J., with the above method made its copy stand out among all other ads on the page. Its used car sale, for one week only, attracted many buyers with its five months' free service and 25 per cent. down payment plan

PENNSYLVANIA GAS TAX RECEIPTS EXCEED 1930

Philadelphia, July 7.—Pennsylvania's gasoline levy during the period between February 1 and May 31 was $684,194 more than in the similar period of 1930. Oil imports into Philadelphia decreased by almost one-third during the first six months of 1931, as compared with the same period in 1930.

Final Revision, Complete New Commercial Car Registration Statistics, May, '30

This table is repeated for comparative purposes only. May, 1931, figures will be found on Page 10.

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Essex	FWD	Fargo	Federal	Ford	G. M. C.	International	La France-Republic	Mack	Paige	Relay	Reo	Rugby	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Ala., 1930			197		6	1			1	171	7	19		4			5				2		2	1			416	Ala., 1930
Ariz., '30			51		11			1		119	4	8					3			4	5		2			2	210	Ariz., 1930
Ark., 1930			152		7			1		142	8	60		3			1						2	2		2	380	Ark., 1930
Cal., 1930	10	1	471	4	80	9	2		10	1220	83	59	1	46	6		58	6	1	2	9	2	31	2	1	102	2232	Cal., 1930
Col., 1930			152		20			2		211	12	25		2		1	8				2		2	15		6	458	Col., 1930
Conn., '30	5	11	167	14	51	1		5	12	291	29	32	2	38	1	1	26		4	11	1	4	8	5	5	21	745	Conn., '30
Dela., '30	6	4	43	1	4	1				88	14	9		1			3	1		3				1			179	Del., 1930
Fla., 1930		4	148		9				1	223	6	8		1		1	1									1	403	Fla., 1930
Ga., 1930	3	12	166		10			1	1	247	14	19		3			1	2					2				481	Ga., 1930
Idaho, '30			72		7		2			117	1	8							1		1			1			210	Idaho, '30
Ill., 1930	4	11	661	71	61			12	4	911	36	135		18	3	2	19	1	2	5		13	12	15		78	2074	Ill., 1930
Ind., '30		42	385	8	28	1		5	2	515	41	67			4	10	20			7	5	7	2	4	7	12	1172	Ind., 1930
Iowa, '30			360	5	37	1		3	6	350	14	156		8			19	3		2	2	5	2	16		1	990	Iowa, 1930
Kan., '30		3	467	1	30			4		395	20	72	4	1			8	1		3	2	4	2		19	5	1041	Kan., 1930
Ky., 1930	1	2	166		15			1	2	253	17	38	2	2		2	11			1	3	2	4	3	1	6	532	Ky., 1930
La., 1930			175		9					216	10	33		5			1						4	2		1	456	La., 1930
Me., 1930			275	2	26	1		5		359	7	47		3			19					1	3	2	4		754	Me., 1930
Md., 1930	13	15	157	14	22			2	3	281	15	43		20			22	1	3	2	1	2	6			4	626	Md., 1930
Mass., '30	26	15	302	18	89	7		10	16	917	66	78	1	39	4	2	37	2	30	18	8	8	17	8	3	10	1731	Mass., 1930
Mich., '30	5	3	461	11	40	4		4	10	1019	72	79	11	8	1	1	36	2		2	1	6	11	16	2	19	1824	Mich., 1930
Minn., '30		6	419	16	49	3	1	9	2	611	34	114	1	12	2	2	16	2			4	5	16	14	1	18	1357	Minn., '30
Miss., '30			255	1	9					253	8	14					12				3	1	1	2	1		560	Miss., '30
Mo., 1930		15	461	16	44	2			5	516	43	81		6	5	1	8	1		2	1	6	9	10		28	1260	Mo., 1930
Mont., '30			63	1	9			5	1	97	6	32		8			4				2	2	5	2		1	238	Mont., '30
Neb., 1930		1	198	2	6		4	1		259	19	50		3	3		2	1			1	1	11	6	1	5	574	Neb., 1930
Nev., '30			7		4			1		24	1			3												2	42	Nevada, '30
N. H., '30	1	7	94	18	7	1			5	173	8	19		4			11			6	3	2					359	N. H., 1930
N. J., 1930	20	41	332	7	74	3		3	15	742	47	33	1	68	1	1	32	3	18	7	7	7	13	4	4	46	1529	N. J., 1930
N. M., '30			116		3		1	1		186	2	12					1						1	5			328	N. M., 1930
N. Y., '30	40	197	1133	75	157	10	1	21	34	1945	179	246	1	182	7	39	112	4	20	120	12	20	87	11	7	94	4754	N. Y., 1930
N. C., '30			265		14	1		2	1	292	7	24	1	2			1	1			2		4	3	1	10	631	N. C., '30
N. D., '30			86	6	7			5		113	7	68					11	1				1		2	1	3	311	N. D., 1930
Ohio, '30	12	46	534	7	83	2		6	19	1072	99	150	9	44	5	4	60	3	4	19	3	21	60	15	4	69	2350	Ohio, 1930
Okla., '30	3	3	311	1	33		2	4	5	406	18	41		4			5				1	7	6	3		2	855	Okla., 1930
Ore., '30	2		121		6	1		5	6	168	14	18	1	9	2		2		2		1	1	6	3	1	4	373	Ore., 1930
Pa., 1930	49	67	670	18	203	4		8	25	1430	73	189	4	122	6	18	49	9	27	79	13	21	56	13	6	49	3208	Pa., 1930
R. I., '30	3	4	56	2	29			6	4	102	11	12		1			14	1	2		1					4	252	R. I., 1930
S. C., '30		1	134		1		1			188	4	5		1			1				2	1	1				340	S. C., 1930
S. D., '30			99	3	5			1	1	84	1	44		1			11				1	2	1	3	1	1	259	S. D., 1930
Tenn., '30		3	218	2	20			1	7	278	7	29	1	5			4				3		14			8	600	Tenn., 1930
Texas, '30		3	803		42	1	2	10	2	849	31	113		12		2	12	1			2	3	11	9		9	1917	Texas, '30
Utah, '30			73		8					132		5		2			7	3			1		2	1		5	239	Utah, '30
Vt., 1930		5	61	4	13					136	2	10					6			1		2	1	2	1		244	Vt., 1930
Va., 1930	7	12	454	2	36					422	29	39	7	17		2	12	3		3	1	1	14	3		5	1069	Va., 1930
Wash., '30	1		143		9	1		1	2	335	14	25		4	1	1	9	1	3		1	2	13	1		40	607	Wash., '30
W.Va., '30		4	155	2	38	1		1	3	189	18	57	1	1	1		9	1		2	1			1		5	490	W. Va., '30
Wis., '30			449	37	27	1	3	4	7	563	29	96	1	3	1	3	24	1	14	7	4	6	3	10		19	1312	Wis., '30
Wyo., '30			21		3			1		38	1	2			1		1										68	Wyo., 1930
D. C., '30	1	4	31	4	3	2			1	94	3	8		1	1		4					2	5				164	D. C., '30
Totals	212	542	12790	373	1504	59	19	152	213	19742	1191	2531	49	717	55	93	738	55	147	306	112	168	452	216	71	697	43204	Totals

"It's Ours," Say Engineers
"It's Ours," Say Dealers

It's everybody's, say we—and we are all talking about Automotive Daily News —the complete newspaper.

The S. A. E. meeting was covered while the meeting was on. The papers were printed, discussions printed, pictures at the meetings, etc. A complete job. But we give service like that throughout the year, and engineers, production managers, etc., believe the paper is edited for them.

Similarly, sales executives, presidents, vice-presidents, etc., believe the paper is for them because we give them sales figures, registrations and business news quickly, accurately and completely.

The dealers claim it is their paper because we give them all the news on time, including dealer features of great value. And so it goes through the industry, every one believing the paper is edited for him exclusively.

Because we print more complete news and more articles than any other automotive paper in the course of a month, and cover all branches of the industry, we naturally satisfy all types of readers.

Such service produces a high degree of reader interest—the most valuable thing you can buy with your advertising money.

FACTORY EQUIPMENT ISSUE JULY 18

If you want to sell machinery, tools, equipment, etc., to factories, here is an issue that will give you, at no added cost, extra distribution to production managers, plant superintendents, purchasing agents, engineers, etc.

Automotive Daily News

H. A. TARANTOUS, *Bus. Mgr.*, 350 HUDSON ST., NEW YORK CITY

WESTERN OFFICE, Willard R. Cotton, Mgr., 333 N. Michigan Ave., Chicago, Ill.

DETROIT OFFICE, George M. Slocum, Mgr., Fisher Building, Detroit, Mich.